VOLUME TWO/NUMBER ONE $1.50 PM451

vertex

THE MAGAZINE OF SCIENCE FICTION

Vertex Interviews Harlan Ellison / Vertex Looks At The Energy Crunch / A Funny Thing Happened On The Way To The Moon / Novelettes by William Carlson and John Keith Mason / Vertex Potpourri of Short-Short Stories

vertex

CONTENTS

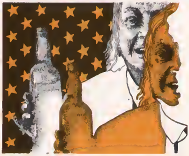
NOVELETTES

Night Watch 4
William K. Carlson
She loved her adopted country, so how could she refuse to do her part in saving it from the invaders?

Time Scoop 16
John Keith Mason
They were the warriors of Earth, brought to this strange planet simply to practice the craft they knew best.

FEATURE FICTION

Manual of Operations 28
Jerry Pournelle
It's only natural that it would take a different kind of mind to understand a different kind of machine.



Televerite 40
Larry Eisenberg
With the way things are going, soon it may be totally impossible to tell the real from the make-believe.

SHORT STORIES

Vertex Potpourri 12
Various Authors
An editor's selection of the best short-short stories received by Vertex.

The Magic Machine 38
Scott Edelstein
Computers are taking over everything else, so why not the witchcraft business?

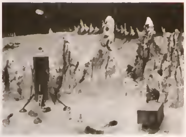
Tower of Babble 60
Rachel Cosgrove Payes
All he knew was that the beast had the power to destroy minds. But he didn't know how, or how to protect himself—yet.

Shell Shock 72
Donald Franson
On the battlefield of the freeways, safety can be both a blessing and a curse.

Deeper Than Death 84
Steven Utley
His past had chased him across the explored universe, implacable, and someday he knew it would kill him.

FEATURE ARTICLES

A Short History of the Space Program; or, A Funny Thing Happened On The Way To the Moon 21
James Gunn
Looking at the space program from a science-fiction standpoint, it's often hard to tell where fiction leaves off and fact begins.

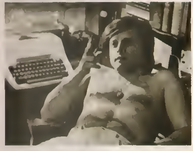


The Space Theater 44
Greg Bear
A look at San Diego's new space planetarium plus.

There's Energy Everywhere 52
Igor Bohassian
In the midst of the energy crises, it might be wise to keep in mind that there are *many* possible forms of energy waiting to be developed.

vertex

PERSONALITY



Vertex Interviews Harlan Ellison 34
Arthur Byron Cover
Science fiction's most talked about author and editor lays it on the line.

VERTEX DEPARTMENTS

Book Reviews 8

Moment In History 99
The First and the Last

COVER ILLUSTRATION BY
RODGER MACGOWAN

EDITORIAL STAFF
Editor: Donald J. Pfeil
Associate Editors: Richard Ashby
Steve Ross
Assistant Editor: Elaine Stanton
Art Director: Andrew Furr
Associate Art Directors: Monte Rogers
Eugene B. Caleb
Susan Jenkins
Advertising Director: Kathy Arnold

ADVERTISING REPRESENTATIVES

New York
Mitchell Napier & Associates/342 Madison
Avenue New York, New York 10017/
(212) 986-0625

Chicago
Kingwell & Associates/5526
Elston Chicago, Illinois 60603/(312) 774-9660

VERTEX MAGAZINE, Volume 2, Number 1 April 1974 issue. Published bimonthly by Mankind Publishing Company. Business offices: 8080 Melrose Avenue, Los Angeles, Calif. 90046. Contents copyright © 1974 by Mankind Publishing Company. Nothing may be reprinted in whole or in part without written permission of the publisher. Printed in the U.S.A. VERTEX welcomes contributions but can assume no responibility for such unsolicited material. Return postage should accompany all manuscripts, drawings and photographs submitted if they are to be returned and no responsibility can be assumed for unsolicited materials. All rights in letters, articles, personal reports and fiction are treated as unconditionally assigned (unless otherwise specified) for publication and copyright purposes and as subject to our unrestricted right to edit and comment editorially. Any resemblance between people and places depicted in fictional material and actual people or places is strictly coincidental. Price per copy $1.50.
Application to mail at Second Class rates is pending at Los Angeles, California and additional mailing offices

EDITORIAL

The lead time (from writing to on-sale) for a magazine like Vertex is many months, so by the time you read this the Skylab III mission, which is overhead at this time, will be down, hopefully with a perfect landing after a perfect flight, as will be the Russian Soyuz mission that launched this morning.

As Skylab III, our 49th manned space mission, ends, so, to all intents and purposes, ends the U.S. man in space program. The only thing left on the agenda in the near future is the Apollo-Soyuz docking mission in 1975, which, of course, is subject to the shifting whims of political expediency. After that there is the shuttle program, but that's a *long* way off.

Over the next year or so I'll be up here on my editorial soapbox beating to death the subject of man in space, no money ever lost on pure research, etc., until people get sick of hearing me sound off about it. But for now, let's take one last look at the past. And with that look let's say thanks and congratulations on a job well done to the 102 men who have been in space, regardless of their nationality, and the literally millions of people who have put unbelievable dedication into making man's first steps off this planet so successful. From a little three-man shop in Culver City, California hand-fabricating super-critical valves to the multi-thousand-worker operation at the vehicle assembly plant in Huntsville, Alabama, and at thousands of points in between, the people who made up America's space industry deserve a vote of appreciation for the job they did.

And, while we're at it, let's not forget a group of people, often sworn at, seldom praised, who made the whole man in space program one of the most fantastic adventures of all time for all the people of the U.S., indeed, for people all over the world. The radio and TV networks who gave us superb coverage of the whole thing, from the first sub-orbital Mercury-Redstone launch to the flight of Skylab III. From the swamp of Cape Canaveral to the dust of Taurus-Litrow, they put the whole thing in our living room. Only 104 men have visited space, only 12 have stepped on the lunar surface, but in spirit and through the agency of live TV billions of others accompanied them on their epic voyages of discovery. And there's at least one, here in the offices of Vertex chained to a typewriter, who will be forever thankful to all the people who made the dream of man in space a reality.

Donald J. Pfeil

Don Pfeil, Editor

Eagle had a message for the people, but even if the message got through, would it really do anyone any good?

NiGHT WATCH

fiction / William K. Carlson

artist / Aiicia Austin

This is Eagle, Americans, speaking for our Council, thanking you once again for your heroic Resistance to the Invader, to that Spoiler who would destroy our wilderness and turn free Americans into industrial slaves. The Enemy is becoming desperate as we continue to kill him in the night with our captured lasguns, and our spears, arrows, knives, hands, and teeth! For almost two years now we have resisted his planes and guns and he is beginning to realize that we shall fight to the death, that we shall never surrender!

And in his panic he has begun the indiscriminate lasing of our Holdings—of our children and our grandparents, of our livestock and our gardens and orchards. Americans, we must all now take refuge in our wilderness, and from its shelter continue to strike the Invader, si—

Cronk! The charcoal writing implement which Grunting Bear had rigged up broke again. Erika fiddled with it. Oh, for a speakwriter. Or a typewriter. Or even a pencil! And oh for a bathroom. And oh, *oh* for an edu-cons! That was what she missed most here in the cave—never been without one before—she remembered her tears of joy when she'd discovered the one in her room in the log house on her first tragicomic day in Oklahoma eight—almost nine years ago. "Cronk this thing!" The charcoal just wouldn't stay in the tube.

"Stuck, dear?" asked Aunt Gretchen, as she stirred the stewpot hanging from its tripod over the fire.

"Not with the broadcast. It's this charcoal contraption!"

"Let me see"—stepping over to Erika's table—"we've got to keep our Eagle screaming." Her clever old hands went to work.

"Some scream. Why haven't we monitored a broadcast in over a month? Nothing but Invader propaganda on the freq now."

"Hmmm." Aunt Gretchen pushed and poked at the implement. "Maybe trouble with the transmitter or the groundcar. Anyway, just because one transmitter is out doesn't mean all the others are. And don't forget our pamphlets."

Erika pushed her stool away from the table and massaged her twisted left leg. "Well, Auntie, I don't know. I suppose Eagle will keep on with his work until they find this cave or all our mobile transmitters, but . . ."

"But what?"

"Well, he screams so defiantly about spears and knives against lasplanes and lasguns, but I keep thinking, what if *I* were out there facing U.S.E. firepower

When Erika spoke she knew that her words were having an effect. But she didn't know what effect, or how long she would continue to be allowed to speak.

with a miserable spear? I'm afraid he'd scream a different tune then."

"So what?" Aunt Gretchen grunted with satisfaction as she got the implement back together. "Eagle is the voice of Resistance. He kept us fighting after the Takeover when most of us believed there was no alternative to surrender. He taught us how to organize and fight this underground war. Little Erika can have doubts about her courage, but Eagle has no doubts! As a symbol he transcends his creator. Here"—putting the charcoal in front of her niece—"scream on, little Eagle-beak."

Erika hitched up her stool and rubbed her nose reflectively. Eagle-beak! Ah well, with a monster like this out front, the family joke was no doubt inevitable. Only her beautiful Bear never mentioned her nose—never once in nine years. More than a week overdue now. Oh, let him be all right! Let him find the Resistance still viable and let him kill often and get away silent and clean and return in one piece. Uncle Howard too. Erika picked up her tool and completed the sentence:—lent, swift, and hard.

On she wrote as shadows lengthened in their westward-facing cave, exorting, cajoling, encouraging the dwindling numbers of Americans who were still resisting, and screaming defiance to the United States of Europe, country of her birth, country of her culture, country she had loved—and now Enemy, Invader, Spoiler.

She thought about this transformation during her writing breaks, and later during their simple meal, and while helping Aunt Gretchen with the chores, and later still, while on watch by the barricade at the cave's mouth, sitting warm and cozy in the big, down-filled bag she and Grunting Bear had shared so often on their trips. She thought of their first time together in it, on their first overnight trip, and that reminded her of her first halting step outside the log house door, holding tight to his big warm hand, and that of still an earlier memory, coming on the plane from Amsterdam, worrying like a little Dutch ninny about her left foot . . .

The trouble was, nobody ever believed it wasn't some big traumatic thing with her. All right, it was crooked, in fact her whole left leg was a bit out of kilter, but the doctors had fixed it up pretty well, and how much walking did you have to do in Amsterdam anyway, with an edu-cons right in your room? And with her special shoe she'd been able to walk just fine through the Rijks to see the paintings, especially her favorite 17th century artists, Rembrandt, Hals, and Vermeer, and through the Municipal, for the 19th century Van Gogh and the 21st century Buklein. She was doing just fine. But nobody believed it.

Not her parents, dead now in the stupid skycar accident, or her sister Frederika, not to mention that cronker she married, always trying to get her shoe off and press her foot against himself. Did Freddie *know* how weird Johan was? Must. Maybe she liked it. But Erika felt she was well out of there. Things would be strange here too with Aunt Gretchen and Uncle Howard, but not (she hoped) *that* kind of strange. If they'd just accept her and not make a fuss about her foot and let her have a few hours on the edu-cons each day, she didn't give a cronk about the rest.

She whispered "Oklahoma" to herself as she looked out of the window. Nothing but clouds below, but the hop from New York took only minutes—they'd soon be down. Was America really as different as everyone said? In New York about all she'd seen was an airport corridor, and most of the people in it seemed to be European or African or Asian!

"Ok-la-homa." Something wild and strange about those syllables. She thought of her queerly named cousin—Grunting Bear—and shivered a little. Only a year younger than herself, and on the picture he did look something like a big, shaggy bear. Not that Erika knew or wanted to know much about bears. What would he be like? What would he think of her with her bad leg and big nose? Probably not much—he'd like girls who could run and jump like . . . like *kangaroos*—if he liked girls at all. Who could tell about Americans? Every year after Mother's birthday visaphone talk with Aunt Gretchen she'd said her sister was looking and sounding stranger and stranger. Still, they were wonderful to have picked up that subtle hint in her letter and to have invited her. Nineteen wasn't too old to start life over again—even with a shaggy-bear cousin!

"We will be landing in three minutes," said a voice. Already! Departure in the evening, arrival in the afternoon. This was going to be a long day! Erika glanced into her mirror and touched her nose, pressing it right and left. Oh, so what! Hadn't three of Europe's finest scholars praised her papers on Rembrandt and Buklein, and couldn't she talk to any historian in this world without being ashamed of her knowledge? Almost? Besides, nobody could say she didn't have beautiful brown eyes!

Her aunt and uncle's greetings were warm (where was Grunting Bear?) but nobody said much at first. The traffic seemed thin to Erika, but Uncle Howard was sweating and swearing as he herded his ancient electric groundcar through the city, where the streets and buildings and store-window displays looked familiar enough, but it did seem odd that so many of the nattily dressed people on the streets were African or Asian, and that most of the whites looked *European* somehow. She was wondering whether it would be polite to ask about this when the car lurched into a street that was mostly holes, and the buildings suddenly seemed strange, and the people even stranger. "What's wrong with everybody?" she exclaimed, too shocked to think about manners.

"How do you mean?" asked Aunt Gretchen.

"Well, they're so . . ." *Ragged* was the word, but now she was remembering her manners. "Uh, their clothes are so—I mean they aren't—nice." Actually, the dowdiest woman in Amsterdam or Paris or any U.S.E. city looked like a fashion plate in comparison. And it wasn't only clothes; looking closely, she saw that there was no make-up, no decent coiffures, no (Erika searched for the English word)—no *smartness.* And the men were just as bad. And the buildings . . .

"You mustn't judge us by our cities," said Uncle Howard. "You know there's only one in each state, and our Council is phasing some of those out."

"Phasing—some . . ." It made no sense. "Cities" and "civilization" were practically synonymous to Erika. To "phase them out" would mean . . . She couldn't get her mind around the idea. She looked again. Broken windows, very few goods on display, crumbling walls, skimpy traffic, and a few ragamuffins walking or bicycling around the disintegrating streets. Bicycles! She knew them only from her edu-cons. So many questions struck her at once that she became tongue-tied.

"It's the material," said Aunt Gretchen. "It has to be natural, you know, cotton, wool, linen. Biodegradable. And there isn't enough to go around."

"But what about the buildings? And why are there so few cars? And why was everything so different just back—oh! OH!" Uncle Howard hit a hole that jarred her from jaw to coccyx.

"Maybe you'd better slow down, dear."

"P-please," said Erika, hoping her spine was still intact.

"The city makes him nervous," said Aunt Gretchen. "He wants to get out.

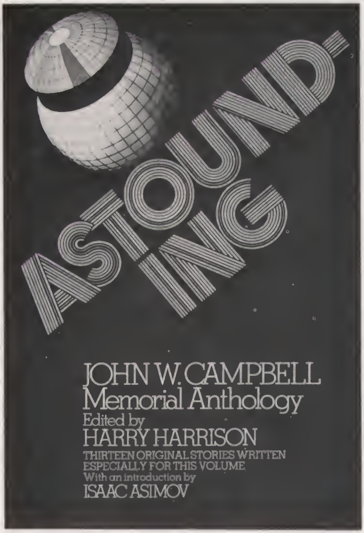
turn to page 88

vertex

BOOK REVIEWS

Vertex looks at the latest offerings
from the science fiction publishers of America.

Books Reviewed by Richard Ashby and Donald Pfeil



ASTOUNDING
THE JOHN W. CAMPBELL MEMORIAL ANTHOLOGY

Harry Harrison, editor
Random House, $7.95

The editor of this volume has written the following tribute: "In the summer of 1971, I was asked to write a brief obituary to be published in *Analog*. I began it this way: 'It is with the most profound sadness that I must report that John W. Campbell is dead. For thirty-four years he was editor of this magazine, guiding it with a firm hand from its origins in the pulps of a past era to its present stature. In shaping this journal he shaped all of modern science fiction, so that, in many ways, this entire body of literature is his memorial.' "

This book is a memorial of a different kind. It is a group project, a spontaneous decision by a number of writers who decided that a special tribute was needed for this editor and friend who had been such a large part of our lives. John Campbell loved his work, and it is obvious that his magazine was as much a part of him as he was of it. What better tribute could there be than to bring out what might be called the last issue of the magazine he edited, an anthology of stories that might, perhaps, echo more of *Astounding* and *Unknown* than of *Analog*.

The writers who are represented are Poul Anderson, Isaac Asimov, Alfred Bester, Hal Clement, Theodore R. Cogswell, L. Sprague de Camp, Gordon R. Dickson, Harry Harrison, Mack Reynolds, Clifford D. Simak, George O. Smith, Theodore Sturgeon, and Theodore L. Thomas.

A work of love and enormous talent. By all means, see that it gets into your library. *RA.*

Read it slowly.

YOU'LL want to. It's that good . . . it's *The Hugo Winners:* 23 speculative fiction stories that have won the science fiction equivalent of the Oscar—Arthur C. Clarke's superb story, "The Star," and Jack Vance's devastating classic, "The Dragon Masters," and Poul Anderson's award-winner "No Truce With Kings" plus 20 more. They span more than a decade of writers . . . and present light-years of imagination for your mind to play with.

This fabulous 864-page anthology of speculative fiction sells for $15.45 in the original publisher's edition. It's yours, if you wish, as one of 4 books for just 10¢ (plus shipping and handling) when you join the Science Fiction Book Club.

As a member you'll be offered other equally exciting books—to build your own award-winning science fiction library.

Here's how the Club works:

When your application for membership is accepted, you'll receive your introductory package of four books for just 10¢ (plus shipping and handling). Look them over at home, and if not absolutely fascinated, return them within ten days—membership will be cancelled and you'll owe nothing.

About every four weeks (14 times a year), we'll send you the Club's bulletin, *Things to Come*, describing the 2 coming Selections and a variety of Alternate choices. If you want both Selections, you need do nothing; they'll be shipped automatically. If you don't want a Selection, or prefer an Alternate, or no book at all, just fill out the convenient form always provided, and return it to us by the date specified. We try to allow you at least ten days for making your decision. If you don't get the form in time to respond within 10 days, and receive an unwanted selection, you may return it at our expense.

As a member you need take only 4 Selections or Alternates during the coming year. You may resign any time thereafter, or remain a member as long as you wish. Most books cost only $1.49 plus shipping and handling. Occasionally, extra-value Selections are slightly higher, but always much less than Publishers' Editions.

So join now. Don't even send us the dime. We'll bill you later. But mail the coupon today.

1032. **Rendezvous With Rama** by Arthur C. Clarke. From **Childhood's End** author, dazzling, visionary novel of a self-contained world in space. Pub. ed. $6.95

1164. **The 1973 Annual World's Best S.F.,** ed. Donald A. Wollheim. 10 novellas, short stories; Anderson, Simak, others. Spec. Ed.

6379. **The Left Hand of Darkness,** by Ursula K. Leguin. Jolting novel of alien society whose inhabitants are human—but ambisexual. Pub. ed. $4.95

8037. **Again, Dangerous Visions,** Harlan Ellison, ed. Forty-six pieces, short stories & novels. **Explicit scenes and language may be offensive to some.** Pub. ed. $12.95

2717. **Nebula Award Stories Seven,** Lloyd Biggle, Jr., Ed. The latest novellas and short stories—prize-winners picked by Sci-Fi Writers of America. Includes Anderson, Silverberg, and others. Pub. ed. $6.95

8052. **A Princess of Mars** by Edgar Rice Burroughs. From **Tarzan** author, first novel of the **Martian Series** involves a princess held captive by depraved ruler. Spec. Ed.

2790. **Science Fiction Hall of Fame.** 26 "winners," chosen by Sci-Fi Writers of America. Ed. Robert Silverberg. Pub. ed. $7.95

6221. **The Foundation Trilogy** by Isaac Asimov. The ends of the galaxy revert to barbarism. Pub. ed. $14.85

6023. **The Gods Themselves** by Isaac Asimov. The master's first novel in 15 years . . . and worth the wait for a fabulous trip to the year 3000. Pub. ed. $5.95

6114. **An Alien Heat,** by Michael Moorcock. Satiric novel of the future, when cities are jeweled, and time-travel common. Pub. ed. $5.95

6130. **A Time of Changes** by Robert Silverberg. Brilliant novel of strange planet where human beings must despise themselves. 1971 Nebula award winner. Spec. Ed.

8532 **The Hugo Winners,** Vol. I & II. Giant 2-in-1 volume of 23 award-winning stories, 1955 to 1970. Asimov introduces each Pub ed. $15 45

Any 4 science fiction best sellers for just 10¢ when you join the Science Fiction Book Club

Science Fiction Book Club 42-S125
Dept. EN-011, Garden City, New York 11530

I have read your ad. Please accept me as a member in the Science Fiction Book Club. Send me, as a beginning, the 4 books whose numbers I have indicated below, and bill me just 10¢ plus shipping and handling.

I agree to purchase 4 additional books during the coming year and may resign anytime thereafter.

☐ ☐ ☐ ☐

Mr.
Mrs.
Miss________________________________
Please print

Address______________________________

City____________ State__________ Zip__________

The Science Fiction Book Club offers its own complete hardbound editions sometimes altered in size to fit special presses and save members even more. Members accepted in U.S.A. and Canada only. Canadian members will be serviced from Toronto. Offer slightly different in Canada.

DRACULA—FRANKENSTEIN

by Bram Stoker and Mary Shelley
Doubleday, $6.95

Believe it or turn the page, Mary Shelley was only 19 when she conceived the plot of Frankenstein. For a kid who had known little but sweetness, light and silliness all her life it was an incredible achievement. Just imagine what she could have come up with if she'd had a real grundgy background. The mind boggles!

Those of you who saw the recent TV triumph which was based quite faithfully on the original might have been surprised at the scene where Dr. Frankenstein's creation is seen in rapt enjoyment of an opera. Read Mary Shelley's original story for a few more surprises.

My memories of Bram Stoker's classic are of fond terror. I read it back when I should have been brooding over the Bobsey Twins, and I understate the facts when I tell you it scared the shit out of me. For longer than I'd care to admit I had the garlic on my back. Then, just as I'd kicked it, along came the picture. I told myself I had nothing to fear but fear (after all, how many times could one literary property frighten me?), so I attended. Thank God it was at a matinee, or I'd still be sitting there trembling. They just don't build horror like that anymore. But they do put both of these great old books together into one great new volume. *RA*.

CONSCIENCE INTERPLANETARY

by Joseph Green
Doubleday, $5.95

Your name is Alan Odegaard. You have five master's degrees. You are a member of the Practical Philosopher Corps. You are mankind's conscience. You roam the galaxy in search of intelligence.

What could a writer do with a plot background like that?

Well . . . not always impressive things. Here's a book that has everything going for it, and comes out curiously . . . old-fashioned; that's the best word I can find. But maybe you *like* old-fashioned SF novels.

Joseph Green certainly has an impressive background. He's a tech writer at the JFK Space Center, participant in several moon shots, contributor of fact and fiction to Analog, and author of five novels.

Close, but no cigar. *RA*.

THE STONE THAT NEVER CAME DOWN

by John Brunner
Doubleday, $5.95

The fate of the world is to be decided by a former cowboy star turned evangelist, a black radical, a successful thief, a reluctant soldier, and a teacher charged with corrupting his charges. With these and a new sensory drug which heightens awareness, John Brunner constructs a wild novel. He has borrowed from the recent unpleasantness over Fascism and added the social ills of today in a broth of social turnmoil. This reviewer found it scientifically plausible and most enjoyable. Mr. Brunner's credits include a Hugo, the French *Prix Apollo* and the British SF Award. It's an out of the ordinary adventure. Give it a try, by all means. *RA*.

DYING INSIDE

by Robert Silverberg
Ballantine, $1.25

The first reaction to this book is: Bob's got a lot of friends. If he needed money that bad, why didn't he just ask? The second reaction, though, is that the book really isn't that bad. As a matter of fact, it's a pretty damn good book. (but what Silverberg book isn't?) The trouble is, it seems as though Mr. Silverberg has gotten onto, to use the modern idiom, a heavy "down" trip, and he can't get off it. In this case, the book's the story of a guy with the ability to read the thoughts and feelings of others, and what the guy goes through when he realizes he's beginning to lose that ability. Substitute life or sex or athletic ability or what-have-you for mind-reading, and you've got one of the great plots of all time. But how many times can the same author use that same plot, no matter how well done each time? In Mr. Silverberg's case, we think he's just about used it up. *DP*.

HEROVIT'S WORLD

by Barry Malzburg
Random House, $4.95

Mr. Malzburg has failed to learn a lesson that the veriest tyro has had pounded into his skull: don't write about writers!

I know you can find examples of successful defiance of this edict, but this sure as hell isn't one of them.

We are handed a somewhat uninteresting middle-aged scrivner who makes "six thousand dollars a year in the good years" and has come down with writer's block. So guess what happens? He has his chief fictional character, a swashbuckling hero from the "wonderful inter-galactic, super-cosmic Survey Team" bail him out.

One doesn't really hunger for formula writing, but Mr. Malzburg could well profit from Jack Woodford's admittedly inelegant advice to writers: "Boy meets girl, girl gets boy into pickle, boy gets pickle into girl."

And whoever wrote that jacket copy ought to be thoroughly ashamed of himself. *RA*.

CLARION III

Robert Scott Wilson, Editor
Signet, $0.95

If you don't understand the whole Clarion thing, the idea of having a writing class for would-be science fictioneers, you might well *hate* this book. For there are some superbly horrible stories in it. There are also some pretty good stories. And there are some borderline very good stories. And there are the comments by the teachers. The initial impression might be that this volume prove that you can teach a person to put words neatly on paper, in nice order and structure, but you can't teach him to *write*. There is some writing in this book, notably by F.M. Busby, Mildred Downey Broxon and Dennis R. Caro, but very damn little. However, that isn't quite as much the fault of the editor, or of Clarion, as it might first appear. For, alas and alack, the editor of the Clarion collection ends up with what is left after the big-time anthologies have bought up the best of that year's stories.

So, after understanding that Mr. Wilson didn't really have that much to choose from, we have to wonder why this book was brought out at all. Even with Harlan Ellison's excellent piece on Harlan Ellison, it's just too much of not enough. *DP*.

JUPITER

Carol & Frederick Pohl, editors
Ballantine, $1.25

This book hit the stands at the same time Pioneer 10 flashed past Jupiter. And the book talks about it. Whether this is the reason for the book, or pure coincidence I do not know. I do know that if it is the reason, it is reaching a bit, and if it is coincidence, it is unfortunate.

Arthur Clarke's award winning *Meeting with Medusa* is here. And when you have said that, you have exhausted just about everything nice there is to say about the book. Oh, there are other good stories. Stories like *Bridge* by James Blish and *Desertion* by Clifford Simak, but they are stories which have been anthologized so many times already that is seems not only a waste to do it again, but almost desecration to include them with the other stories in this book. There are two gathering points to the stories. They were published between 1934 and 1972 (a rather wide field, you must admit), and they all have to do with *large* planets, or at least *mention* large planets. Which, of course, makes them all relevant to a book about Jupiter. And then there's the introduction, another interesting collection of assorted interchangable sentences from interchangable Asimov articles. A good book to forget. *DP*.

○

HARPER SCIENCE FICTION
From Harper & Row
SCIENCE FICTION

The first collection of Jewish Fantasy and Science Fiction Stories
WANDERING STARS
An anthology edited by Jack Dann; introduction by Isaac Asimov. $6.95

Clarke, Anderson, Russ, Pohl, Ellison, Silverberg, Rotsler, Wolfe
NEBULA AWARD STORIES EIGHT
The prize-winning collection, edited by Isaac Asimov. $6.95

"Immensely entertaining . . . long overdue."—Poul Anderson
CASEY AGONISTES
and Other Science Fiction and Fantasy Stories
By Richard McKenna, author of The Sand Pebbles. $5.95

"A collection of complex, humane stories."—Kirkus Reviews
SHOWCASE
An original anthology edited by Roger Elwood. $5.95

A runaway quasar threatens the earth's survival
THE INFERNO
A new thriller by Fred and Geoffrey Hoyle. $5.95

⍰ **SCIENCE SPECULATION** ⍰ ⍰

Startling experiments in plant-man communication
THE SECRET LIFE OF PLANTS
By Peter Tompkins and Christopher Bird. Illustrated, $8.95

The provocative best seller about the greatest mystery of the ancient world
SECRETS OF THE GREAT PYRAMID
By Peter Tompkins. Illustrated, 7th printing, $13.50

"Astronomical imagination and fact in an alluring marriage." —Ernest K. Gann
MARS AND THE MIND OF MAN
Facts and speculations by Ray Bradbury, Arthur C. Clarke, Bruce Murray, Carl Sagan, and Walter Sullivan. Illustrated with Mariner 9 photos, $7.95

Harper & Row
10 E 53rd St., New York 10022
1817
At bookstores

vertex potpourri

KNOWING

by John Croft Norton

Keitoa is cold, very cold. We have lost a round of Knowing.

Jarno believes in us. Jarno always believes in us. He stands high above us, feet edging the sandstone precipice, arms lifted into the headwind, soft screams arching over the bowels of the Colony below, his body tilting slightly, now hidden in the sweep of his cape, now lilting in rythym with the pink dust swirling about the flickering red flame he makes there in the wind. Boldly he faces the Voices and boldly he shouts his still somehow whispering blasphemy.

Jarno believes in us.

Wequo meets us as we come down from the cliff, onto the road from the Colony; bearing Keitoa, we walk in silence, afraid, still wondering. Wequo stops to let us pass where the road is narrow and grips us warmly, never quite touching us.

As always he asks, in the soft twitter of the Loving, "Have you come from Knowing?"

Nodding, Paulo brings us water from the basin. We kneel, and Paulo slowly washes our hands and cheeks, inquiring in the soothing drone of the Healing, "Have you come from Knowing?"

Loomna, hovering near the earth, murmuring in the quiet undulations of the Praying, bless us. Chanting, he passes before me, relieving me, bless us that we may Know. I feel the spirit rising within me and the wind about me lifting the cloth from my shoulder, bless us.

In the darkness, in the cool beneath the bank of black earth, I lie silent and listen for the Voices. We bring Keitoa into the coolness of the black and grateful ground. We make a place for him; a mound among mounds. We love the earth; they lie beside me, and I listen for the Voices.

Wondering, I lie.

In the manner of the Knowing, I wonder. When will the Voices come, slipping over the rocks, seeping through the Colony, filling the dark womb where I lie, wondering. They come so quietly; at first, I will not know whether the Voices come, or I imagine their coming and am afraid. I must feel the voices.

My turn will come at Knowing.

I sleep, and Jarno touches me.

"They will come tonight."

I know that it is so.

Soft, as purring, soft, the Voices, softening my spirit. "Do you Know?" They sing, and I moan and must cry out, "I am not ready!"

"You will come?" They caress me, they nourish me, and I am soothed; I feel the Voices.

"I will come."

We rise to the clifftop, drifting slowly among the rocks to face the Voices, and the whispering begins once more. We sink to our places as they slowly engulf us. Oozing around us, soothing us, warming now blanketing us in their mantles of pink dust, tingling they flow through us and we yearn to Know.

My blush increases, and I feel the wind about me. "Do you Know?" The Question rises around me, comes within me, and I know only the Question. The Voices moan within my soul, "Are you come for Knowing?"

I am cold, very cold. They have lost a round of Knowing.

And Jarno stands above the Colony, screaming his beautiful whispers into the dusty breath of my caress.

HISTORY LESSON

by J. Douglas Burtt

"But there lies our future, Peter." Professor Hamilton said, with a sweep of his hands, "Out there, buried in the past."

I only nodded and continued to marvel in the tremendous view of the Sonoran Plain we had. We were standing on top of Coronado Peak on a dry, windy, hot Arizona day, playing hookey from our duties in camp. Well, actually not hookey since I was Professor Hamilton's chief research assistant and he was the head honcho of the research team. We were both tired from the brain drain that comes from setting up a crucial experiment, so we had decided to relax and had ended up on the Peak.

"What do you suppose we'll learn, Peter?" the aging scientist asked.

"Hopefully something substantial." I sighed, "The research committee has been pushing us pretty hard for results."

The plain truth of it was they were tired of giving us money for what they deemed a hair brain scheme.

He turned to look at me. "Has it been a mistake?"

I frowned and shook my head, "No, I don't think so, Professor. Our initial experiments show your new theory on sound is correct, so everything should work out fine, even for the committee."

"Remember the first time I broached the theory to you?" he asked, smiling that infectious grin everyone around him knew so well.

"How can I forget!" I snorted, as I pictured that day in my mind.

"Sound is a wasted natural resource!" he had said to his advanced physics class two years ago, "We have at our disposal a huge source of historical fact untouched, UNTOUCHED, by anyone."

"Sound is a source of history?" I had asked.

"Definitely! Well, maybe not so definitely right now, but we will tap that source. I have a theory that sound never really dies out; it merely becomes too faint to hear with the naked ear. Therefore, by amplifying these faint sounds the past can be heard and recorded."

He paused to glare at us all, "I have convinced the research committee to fund our project, on the stipulation that it contribute to the history department as well as our own. So, upon completion of our lab work, we will proceed to a good historical site and astound the world!"

That was how it started, a strange theory with a far-reaching goal. Under his enthusiastic leadership we bent to with a will and a year later, under controlled conditions we were able to make a sound in a sealed room and hear it again the next day. We added some sophisticated discriminator circuitry, so we could isolate sounds made at a particular time, and calibrated our gear.

But the committee, while impressed with the results from the lab, continued to push for early practical results. So here we were, on the Sonoran Plain, set up to listen to history.

We had picked this place not only because of its desolation, and lack of civilized noise, but because it was, in fact, a good historical area. Here in 1540, Francisco Vasquez Coronado had led his expedition into what would become the Continental United States in search of the "Seven Cities of Cibola". They never found them, by the way; only discovered the Grand Canyon and penetrated into Kansas.

"I think it's time to return, Peter." the Professor said, breaking my chain of thought.

"Okay, let's go." I answered and led the way down the trail to the jeep.

It took us about forty-five minutes to arrive back at the campsite on the Plain. It was a regular tent city, packed with everything we could conceivably need. That was a Hamilton trademark: make sure you have considered every possible occurance and provide for it. Not only did we have back up equipment for our electronic gear, but our ranks were swelled with language experts, some for the Spanish we knew Coronado used, and others for the several Indian dialects of the area.

The next three hours were spent in checking and double checking the circuits. All of us, especially Hamilton, wanted everything to be perfect when we turned on the power.

"Have we forgotten anything?" he asked when we were through.

"No, I can't think of anything." I answered, "Discriminators are set to accept anything from the target date, nothing before and nothing after. The recorders are ready. The only worry I have is that the ability of the gear to take the power levels we need for amplification. 1540 sound is near the flat plateau of the calibration chart."

"That was one of the reasons we picked this spot, Peter. The absence of high noise levels here will help cut down the power needed. I hope that will be enough." The Professor sighed, "Well, let's listen."

It took a few minutes to warm the gear up and run hot tests on the system, but at last, everyone sat still, making no unnecessary noise, watching the four of us with headphones, and waiting.

The wait wasn't a long one, the historical advisors had pinpointed the right spot for the test.

Through the earphones came the warbled but unmistakeable sounds of horses. There was also a clanking sound. I looked at the Professor and could see from his expression he was thinking the same thing I was: the other sound was armor.

Then, we heard a voice raise itself above the noise. It was clearly a man's voice and it sounded like Spanish to me. It called out one sentence, then died.

I caught the flash of a red warning light out of the corner of my eye—the circuits were overloading. As quickly as it had begun, the experiment was over.

The camp exploded in sound and excitement: the technicians who hadn't heard the tape were asking about it and those who had were talking about it. Hamilton, in one of his usual gestures, had the tape played back for all, then turned it over to the interpreters.

We all waited tensely, silently. Each of us was wrapped up in our own thoughts, wondering what the voice had said.

Finally, the experts emerged from their tent, carrying a piece of paper. They had strange expressions on their faces, and I suddenly had a bad feeling in the pit of my stomach.

They handed the paper to Professor Hamilton. "I don't believe it." he said in a low, shaky voice after he read it, "All that effort for this." He handed it to me and walked away.

I had to read it several times before I comprehended the irony of it all. Then I laughed out loud. We had provided for every contingency, every possible event, in order to make this experiment a substantial success. But we had forgotten the most important thing. History is made by events, and Men, by themselves, are only men.

The voice had said:

"Hola, Miguel. Tell Coronado to slow down, I have to piss very badly."

SECOND PARADISE LOST

by Don Pfeil

It might have been springtime, but it was a springtime such as man had never seen. A springtime still fresh and lovely and alive. A springtime that might well have come to this planet millions of years before man set foot on it, or millions of years after he leaves it. A springtime of ultimate beauty; the symmetry of an oak leaf, greedily drinking of the golden sunshine; the brilliant radiance of dew drops sparkling and scintillating in the playing beams of light, separated by the slender spikes of pine needles vibrating in an elysian breeze; the absolute splendor of a garden of loveliness, an oasis of silence and peace.

Laying with quiet tranquility in that springtime dawn is a lake, a reflecting pool of bottomless blueness. The quiet flight of a gold and tan and red bird, hushed in reverence to the dawn, traces a path of shadow, broken by a gathering plunge to the surface, ripples spreading outward announcing the hunt. But it breaks not at all the even placidity of the lake, a pacific scene not yet awake in the new dawn. Patriarchal oaks,

turn the page

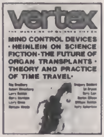
vertex

BACK ISSUES

LIMITED ONE EACH PER ORDER DUE TO SCARCE SUPPLY

A limited number of the first six issues of Vertex have been retained for collectors who wish to establish a complete sequence of Vertex. These copies are now being made available on a first-come-first-served basis. We request that you limit your order to no more than one copy of each issue to allow as many as possible to take advantage of this offer. Thank you.

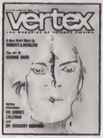
VERTEX Vol. 1, No. 1
- Ray Bradbury
- Robert Silverberg
- Larry Holden
- Harry Harrison
- Larry Niven
- Herman Wrede
- Gregory Benford
- Ed Bryant
- Terry Carr
- Harlan Ellison
- William Rotsler
- Forry Ackerman


vertex
MIND CONTROL DEVICES · HEINLEIN ON SCIENCE FICTION · THE FUTURE OF ORGAN TRANSPLANTS · THEORY AND PRACTICE OF TIME TRAVEL ·

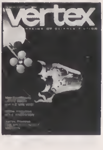
VERTEX Vol. 1, No. 4
- E. Michael Blake
- Alan Brennert
- Tak Hallus
- Geo. Alec Effinger
- William Rotsler
- Charles E. Burbee
- Walt Liebscher
- Herman Wrede
- James Sutherland
- James Benford
- Gregory Benford
- Jerry Pournelle

VERTEX Vol. 1, No. 2
- Norman Spinrad
- F.M. Busby
- Larry Niven
- Steven Utley
- D. William Paul
- Carol Carr
- Edward Wellen
- Forrest J Ackerman
- James Sutherland
- Igor Bohassian
- Gregory Benford
- Jack Jardine
- Paul Turner

VERTEX Vol. 1, No. 5
- Stephen Goldin
- George R.R. Martin
- Terri E. Pinckard
- Larry Eisenberg
- Richard Ashby
- William Rotsler
- Robert A. Heinlein
- Steven Utley
- Herman Wrede
- Lawrence Neal
- James Sutherland



VERTEX Vol. 1, No. 3
- Larry Niven
- William Carlson
- A.E. Van Vogt
- Herman Wrede
- F.M. Busby
- Norman Spinrad
- Charles Fritch
- Greg Joy
- Scott Edelstein
- Rachel Payes
- Gregory Benford
- Igor Bohassian
- Jerry Pournelle
- Paul Turner



VERTEX Vol. 1, No. 6
- Neil Shapiro
- Richard Ashby
- Joseph Patrouch Jr.
- Walt Liebscher
- William Carlson
- Leonard Tushnet
- Gregory Benford
- Don Kerr
- James Sutherland
- Joanna Russ
- Arthur Byron Cover

VERTEX ORDER DEPARTMENT • 8060 MELROSE AVE., LOS ANGELES, CAL. 90046

Enclosed is $________ payment in full for the following issues of VERTEX magazine @ $2.00 each. Please send my order at once.

☐ VOLUME 1, NO. 1 ☐ VOLUME 1, NO. 2 ☐ VOLUME 1, NO. 3
☐ VOLUME 1, NO. 4 ☐ VOLUME 1, NO. 5 ☐ VOLUME 1, NO. 6

Name____________________

Address____________________

City____________ State________ Zip________

POTPOURRI,

from page 13

gnarled trunks protected by lusty young pines and gracefully innocent ferns, circle the lake, guarding it from intrusion by those who cannot belong in this world without meaningless strife.

Venerable old trees and mighty young mountains, waiting and guarding the dawn. The patience interwoven with a spice of expectancy, the trees and birds and animals and lake, and yes, the very earth, waiting, savoring a primordial splendor, yet with impatience growing.

A snout pokes through the girdling ferns, a reptilian face with tiny eyes scanning the lakeshore for the enemies nature has assigned to it. With none in sight the face advances, followed by a scaled body, monstrous yet clumsy, puppy-like, quivering with apprehension. The snout dips into the surface, breaking it, drinks deeply, then lurches, albeit silently, back into the ferns, the one footprint which was its only mark on the scene slowly filling with water. The reptile has kept his date with the lake, his appointment with this particular instant in time, and has moved on.

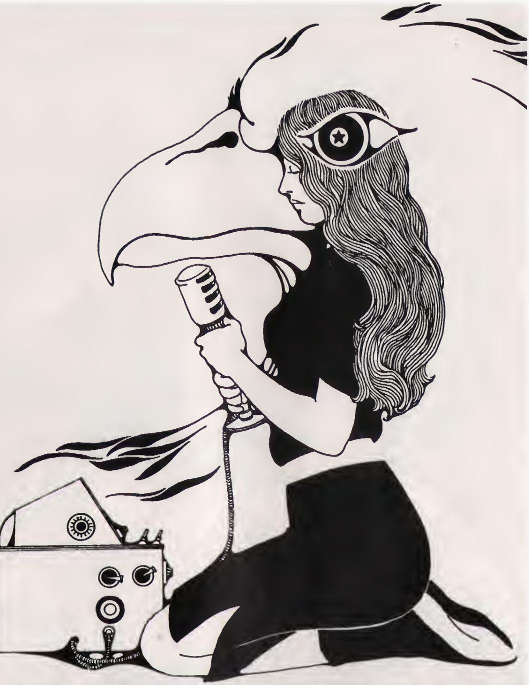
The clean silence is broken by a single sharp sound; the crack of a dry twig breaking, unnatural in this world. A shadow appears among the ageless trees, a shadow which slowly becomes substance, the substance becomes a strangely wavering silvered box, solid in two dimensions, insubstantial in the third, and the box emits a man, clad in shorts so close to skin color as to make him appear naked. Moving with determined purposefulness, the man pushes his way through the ferns and young pines, part of this world of peace in appearance, yet apart from it in fact. He reaches the unpolluted blue edge of the lake, the dividing line which cannot divide nature from nature, only man from nature, just as the enlarged orb of the sun lifts above the treeline, scattering fortunes in gold reflections across the water. The man raises his hands, as if in wonder and reverence for the dawn, this dawn of dawns, the holiness of light coming once again to the world. His body stretches, his mouth opens with a yawn at complete variance to the appearance of supplication inherent in his posture, then, with a single movement, a jerk of coordinated muscles, there flies, spinning from one of his hands into the crystal cleanliness of the water, an aluminum recyclable beer can. The man, having kept his commitment in time, having made his contribution to nature, turns and walks away.

/turn to page 56

The
SUPERSTARS
of Science Fiction
are in
VERTEX!!

In our first year
VERTEX
has featured:

FORREST J ACKERMAN
POUL ANDERSON
DR. GREGORY BENFORD
DR. JAMES BENFORD
RAY BRADBURY
ED BRYANT
F. M. BUSBY
TERRY CARR
PHILIP K. DICK
HARLAN ELLISON
STEPHEN GOLDIN
HARRY HARRISON
ROBERT HEINLEIN
FRANK HERBERT
WALT LIEBSCHER
GEORGE R. R. MARTIN
LARRY NIVEN
RACHEL COSGROVE PAYES
DR. JERRY POURNELLE
WILLIAM ROTSLER
ROBERT SILVERBERG
NORMAN SPINRAD
JAMES SUTHERLAND
A. E. VAN VOGT
AND MANY MORE!



TODAY'S TOP SCIENCE FICTION BY TODAY'S TOP AUTHORS, AND THE CLEAREST AND MOST CONCISE OF SCIENCE FACT, TOGETHER UNDER ONE COVER.

EXPERIENCE VERTEX

As our society becomes more and more technically oriented, it becomes more and more necessary for man to understand the underlying ideas that his technological society is built upon. It is through those articles appearing each issue in Vertex that he can gain understanding. And as he gains understanding of what is going on around him, of where his society is taking him, it becomes more and more important that he develops the ability to see the possible futures ahead. Futures outlined by the masters of science fiction on the pages of Vertex. Experience Vertex now. You'll never be the same. Mail coupon today.

SUBSCRIPTION RATE, 1 YEAR $8.00. SINGLE COPY PRICE $1.50, SIX ISSUES PER YEAR.

SUBSCRIPTION ORDER FORM

VERTEX MAGAZINE 8060 MELROSE AVENUE, LOS ANGELES, CALIFORNIA 90046

Yes, I wish to insure receiving every issue of Vertex without fail. Please enter a subscription in my name for the period indicated below.

☐ **1 year (6 issues) . . . . $ 8.00 (save $1)**
☐ **2 yrs. (12 issues) . . . . $14.00 (save $4)**
☐ **4 yrs. (24 issues) . . . . $24.00 (save $12)**
(Note: Add $1.00 per year for Canada, $2.00 per year for foreign.).

☐ Enclosed is $________ payment in full for my subscription above. Add extra bonus issue to my subscription for enclosing payment now.

☐ Please bill me.

MS. / MRS. / MR. ________________________
NAME (PLEASE PRINT)

____
ADDRESS

____
CITY STATE ZIP CODE 3001

They were specialists in killing, so it was
only natural they would practice their specialty.
Or was it all that normal, afterall?

TIME SCOOP

fiction/JOHN KEITH MASON
artist/Steven Arnold

He didn't know where he was, but he was certain it wasn't where he had been. Not unless the Western Front in France could in seconds grow a blue-green jungle without a trace of human habitation, or of the biggest war in mankind's history.

—I—

As Captain Alan Mackenzie ran the gauntlet of antiaircraft fire that morning, he felt the tic start again below his right eye. Archy's black bursts didn't usually bother him—he realized how dicey his mental condition must be.

During the dogfight over Arras he noticed the tic once more when his guns jammed. He bolted for the high clouds, his body bathed in cold sweat. Two Pfalzs took out after him, but he lost them in the cloud cover. Climbing to 21,000 feet, he was on his way home when it happened.

The Sopwith shuddered like a lightning-struck animal, plummeted earthwards. Mackenzie screamed; for an agonizing moment, it seemed as though every cell in his body were being rent asunder. Then he was too busy trying to regain control to worry about the pain. Wind whistled through the wires as the Camel lost altitude. Suddenly he burst from the clouds. Sunlight blinded him, even through his goggles. He banked sharply, bringing the little scout under control.

The sun was behind him when he opened his eyes, looked down. The shock made him close them, reflexively. Leaning out of the cockpit, he peered down once more, straining to see what *mustn't* be there. But it was—below him, stretching as far as the eye could see, *was a blue-green jungle.*

Was he going bonkers? A little earlier, he'd been flying over northern France in a chilly European winter. Now sweat poured from his body under the heavy flying jacket and uniform. Tearing off his goggles, he wiped his streaming face.

"My God, it must be 80 degrees!"

And it was a humid heat. Loosening his seat-belt, he struggled out of his flying jacket. Then swooped lower. From 1,000 feet, the jungle seemed thicker. Great serried ranks of trees flowed like a blue-green sea to the horizon. Shading his eyes, he glanced up at the sun. Was he imagining it, or did the solar disk seem *larger?*

He wasn't imagining it—the brilliant orb above was almost twice normal size. Something incredible had taken place. Where was he?

His eyes returned to the jungle. Too much had happened, too quickly. He must find a place to land, have time to work things out. Suddenly he spotted a long clearing ahead. Bringing the Sopwith down, Mackenzie saw that the clearing was level, at least 1,500 feet in length.

"Thank God!"

He passed over it, circled and came back, reducing speed. As he swooped lower, the pilot stared with disbelief. The unmistakable lines of a landing field were etched on the grass! But he was too busy getting the machine down to pursue the matter.

His wheels hit the ground, bounced, and then he was taxiing towards the clearing's edge, eyes widening.

A canvas hangar loomed ahead.

Ten feet from the hangar, he switched off and slumped back in his seat. He was gazing with bewildered eyes at a Bessoneau hangar—canvas over a wood framework—identical to those at his own flying field! Beside the hangar were a dozen large fuel drums and a hose for refueling.

Unstrapping, he climbed stiffly from the cockpit. Alan left his heavy leather flying jacket in the plane. Rivulets of perspiration still poured from him in the muggy heat. He doffed his tunic and rolled up his sleeves. Reaction left him feeling limp and spent. He wondered idly what the squadron would think about his disappearance, how they had made out in the dogfight. Losses had been stiffer than usual lately. He shook his head to clear the cobwebs; he must find out what the devil this was all about. Forcing himself to inspect the fuel drums, he squirted a little from the hose onto his palm and sniffed. Gasoline! Lucky, really, He'd about exhausted his fuel.

Next, he checked the inside of the hangar. Aircraft spares were neatly piled along the walls, allowing plenty of space for the plane. About the only thing missing was ammo.

Hmmm. Interesting omission. It suggested something he couldn't pin down; something he sensed might yield a clue to this weird situation. He made a mental note to follow up on that when he had more time.

Outside, he wiped his streaming forehead. This humidity took some getting used to. Then he uncoiled the hose and, unscrewing the tank cap, began gassing up. Whoever was responsible had certainly arranged matters nicely. A clearly-marked flying field, a Bessoneau hangar, complete with spares and sundry equipment, plus sufficient fuel to keep him flying for some time, if he were careful.

Mackenzie realized he mustn't seek explanations yet. He hadn't enough facts to go on. Better wait and see.

Refueling completed, he swung the little scout around—and realized he was stymied! First World War planes required someone to swing the prop while the pilot went through his engine warm-up. He couldn't manage it alone. The pilot's shoulders slumped and he felt the weariness of defeat.

Then he looked up. A strange high whistling sound attracted his attention. A streamlined teardrop shape flashed low over the field, climbed back above the trees. The eerie noise faded, returned. The aircraft swooped, touched down. Scoop-shaped devices blossomed behind it. The peculiar machine's speed slowed as it rolled towards him, stopping about thirty feet away.

A portion of fuselage behind the stubby delta wings slid back and a grotesquely-helmeted figure emerged. Alan Mackenzie's spine went cold as he looked at that apparition. The man took off his helmet to reveal swarthy features. He was dressed in tropical whites; a trim, ribbon-bedecked shirt and natty short trousers. Jumping to the ground, he strode towards the Camel pilot. His gaze traveled beyond Alan and his mouth fell open.

"Well, I'll be—! Where the devil did *that* come from?"

Mackenzie swung around.

Beside the Bessoneau hangar was a cylindrical metallic sixty foot shape that hadn't been there before.

Alan turned to the other.

"Haven't the foggiest idea. It wasn't there when I landed a few minutes ago."

The strangely-garbed pilot gazed intently at Mackenzie, alert eyes absorbing the details of his uniform.

"And you—who're you?" he said in peculiarly slurred English.

The Sopwith pilot held out his hand.

"Captain Alan Mackenzie of the R. F.C. *Who are you?*"

Strong fingers gripped his. A smile brightened the swarthy features.

"Major Tony Zambrowski, United Nations Air Force." He stared at Alan, head tilted on one side, curiously. "Your lingo's sortta funny. A type of Anglic I don't recall hearing before. Where you from, fella?"

The RFC man grinned. "A Canadian from the Northwest Territories . . . And you?"

Zambrowski's perplexity increased.

"Noramerican from the Frisco-Angeles Complex—Wait a minute! *That uniform.*" Excitement glittered in his dark eyes. "What *year,* man, what year are you from?"

The Canadian froze.

"1917," he said slowly. "I'm a scout pilot in the Royal Flying Corps."

Zambrowski whistled softly.

"The First World War!" he cried with delight. "The Pre-Atomic Era! I *knew* I'd seen that lovely old crate somewhere: in the War Museum back home."

He stopped at Alan's expression.

"Sorry, fella. My year was 2057; my war, the Philippine Incident between the United Nations Alliance and the Eastern Confederacy . . . I was chasing a Ming fighter over Mindanao when I went through that—whatever-it-was that brought us here. What about you?"

The Canadian looked stunned. "A dogfight over France, behind the Hun lines. My guns jammed. I was hightailing it for home when I went over some kind of agonizing threshold and found myself here. . . . Incidentally, have you noticed the sun's size?"

Zambrowski nodded, eyes heavy-lidded with thought.

"Yeah. And the heat." He grinned. "Well, at least *I'm* dressed for it." Glancing appraisingly at Alan, he said: "I don't have a clue how it was done, but it's as plain as the nose on your face we've been hijacked to another planet, closer to its sun. Or it's a larger star. Anyway, *something* scooped us from our own times and deposited us here—wherever the hell *here* may be!"

"Incredible!" said the Canadian. "Just like one of H. G. Wells' fantasies."

Zambrowski stepped past Mackenzie.

"Hold everything! I want to check out this hangar."

Alan followed him. "Is it the type you used?"

The other grinned at him.

"You catch on fast. It's a Remdrell field hangar, all right. Assembles in half an hour. And knocks down into an eight by twelve foot package that can be easily transported. Light as hell despite its appearance."

The U.N. pilot entered the hangar, peered around. Spares for his machine were positioned along its edges. He glanced quizzically at Mackenzie.

The Canadian nodded. "Exactly the same as mine. Everything arranged for our convience. You'll likely find whatever you use for fuel outside. There's only one exception: ***no ammo.***"

The other's eyes traversed the material again, then he nodded.

"You're right! No missiles, bombs—nothing."

He turned contemplative eyes on the Camel pilot.

"Suggestive?"

"That was my thought," agreed Mackenzie. "But I didn't try to push it further till I had more information."

Tony said: "Uh-***huh.*** Let's take a gander at our bright, new world!"

Outside the Remdrell hangar were a dozen large cylinders of liquid hydrogen—Tony's fuel.

—II—

Airborne, it took them a little while to work out an effective operating procedure. Alan's Sopwith Camel cruised at just over 100 miles per hour; Tony's Lockheed Vulture got the best out of its Phoenix rocket engine at 1,200 to 1,400 in the troposphere, 3,500 mph in the more rarified regions above. The Canadian's 110 horsepower Le Rhone gave him 2-¾ hours of powered flight and a 24,000 foot ceiling. The American's ship was powered by a miniature atomic reactor using liquid hydrogen; it had a thrust in foot-pounds that made Mackenzie's eyes bug. Its ceiling: 300,000 feet. With full tanks, the Vulture could stay aloft for 8 hours.

As the Sopwith had no radio, they were compelled to rendezvous at predetermined points to exchange findings. Tony took along a spare drum of gas and the hose for Alan's machine.

It didn't take long for Mackenzie and Zambrowski to realize they were far from being alone on this strange world.

Mackenzie's initial landing-place was a seacoast. The jungle had petered out twenty miles back. The Camel put down on a sandy beach to wait for Zambrowski. Ten minutes later, the keening banshee wail of the Lockheed announced Tony's arrival. He pulled up beside the prop plane.

Tony sprinted across the sand excitedly.

"I've found some others."

"Who are they?" asked Alan.

The other grinned. "Brother, you just wouldn't believe it! We'd better gas you up, though."

The two worked quickly to pass the hose from the rocketplane. Another ten minutes and they were airborne.

Alan followed the seacoast for an hour and a half. Tony alternately zoomed ahead and dropped back to check on him. His Lockheed couldn't fly at less than 350 miles per hour.

The Canadian rounded a steep headland and gasped.

In a crescent-shaped bay were two vessels out of history: a 16th. Century Spanish galleon, in all its high-pooped magnificence, and a Viking longboat. The galleon rode at anchor two hundred yards from shore, while the longboat had been beached. Its crew were gathered around a cooking-fire, looking up with astonished faces at the aircraft.

Tony flashed past Alan, gesturing towards the beach. The Canadian nodded, banking his Sopwith, and followed him in to a bumpy landing thirty yards from the Vikings. Mackenzie switched off and climbed from the cockpit to join the American.

As they strolled towards the Norsemen, the RFC flier wondered how they would understand one another.

The Vikings stood tensely watching their approach, hands on sword-hilts. But the weapons remained in their scabbards.

The leader—an immense, red-haired fellow with long, curling mustaches—barked something unintelligible at the pilots. Mackenzie's neck hair bristled: a moment after the giant spoke, *he understood the words.*

"Where are the Valkyries?"

Tony and Alan exchanged glances.

The American whispered: "He thinks he's gone to Valhalla!"

"We haven't seen any Valkyries."

Mackenzie watched the big man's surprise at comprehending his words. But the Viking wasn't to be put off.

"Are you from Odin, then?"

The U.N. pilot shook his head. "We are men of times far in the future. A strange force seized us when we were fighting in our own wars—"

The Norse warrior interrupted:

"You say you are fighting men? Then where are your weapons?"

Alan grinned to himself. Red-beard was observant. "We fight in the air like your Valkyries," he said. Gesturing to the planes behind him: "In these."

Skepticism battled with the desire to believe in the Viking's ice-blue eyes.

The American said: "We're not getting anywhere . . . In my time, when men meet, it's customary to exchange names. Mine is Tony Zambrowski. What's yours?"

The chieftain grinned.

"You are right, Tony Zambrowski. I am forgetting my manners. My name is Leif Thorkildson; I am hereditary leader of this band."

Mackenzie introduced himself, listened to a parade of tongue-twisting Norse names as the kinsmen identified themselves.

Then Tony said: "Leif, I want to ask you something."

The giant gazed at him expectantly.

"When you were snatched from your time-world, were you dying?"

A gleam appeared in the cold eyes.

"You are right: we were not. We had been at sea, making for the Saxon island to raid. That explains why the Valkyries did not come for us!"

Mackenzie realized that by the "Saxon island," Leif probably meant England.

Tony smiled. "Well, you're not in Valhalla, Leif. But you *were* taken from your world in circumstances similar to what happened to each of us. While you weren't actually in battle, you were setting forth to *do* battle, weren't you?"

The chieftain became thoughtful.

"True. But, if we are not in Valhalla—*where* are we? And why are fighting men being taken from different ages to this strange place?"

Alan said: "We don't know, Leif."

Tony roared: "But, we're damn well going to find out, and soon!"

The mighty Viking shook with laughter. "By Thor's hammer—*that* is the spirit!" He turned serious. "Another thing: how do I understand your strange language? As you appear to ken mine?"

The Canadian shook his head. "More questions we cannot answer, Leif Thorkildson."

The Norseman nodded, gestured them to the cooking-fire.

"Enough! Let us break bread."

As Tony munched a delicious seafood chowder, he pointed towards the galleon anchored in the roads.

"Have you talked to the Spaniards, yet?"

Leif grimaced, his red mustaches glinting in the firelight.

"We tried, but they are strange, haughty folk. Spaniards, you called them? . . . They would have nothing to do with us."

Staring hard at the high-pooped galleon, Tony asked:

"Did they fight when you tried to communicate?"

Thorkildson shook his massive, leonine head.

"No. And it seemed peculiar to me at the time. Many were the outlandish-looking devices on that vessel which I took to be weapons."

The pilots exchanged glances. At least, the war-like instincts of the Spanish hadn't been aroused.

Alan wondered why.

Tony, watching him, said: *"That's* something we've got to dig into. What d'ya say we pay our grandee friends a visit after lunch?"

Mackenzie nodded.

But they didn't have to go to the galleon—the Spaniards came to them. In a small boat, lowered from the high deck, a few minutes later.

The fliers and Vikings watched with interest as the ship's boat rowed to shore. As it drew closer, they saw it contained an officer and half a dozen cuirassed men.

Instantly the boat struck sand, the officer sprang ashore, strode towards them. He was a tall, lean man who moved with the grace of a panther. His dark, bearded face had eyes only for the two pilots.

Halting a few feet from the cooking-fire, he bowed courteously.

"Gentlemen, I know not who you are, or what wondrous world you come from, but I am here to request a council of war. Allow me to present myself—Don Luis José de le Rodriguez of Her Most Catholic Majesty, Isabella the First's fighting forces."

While they exchanged names, Alan grinned to himself. This Spaniard had style! They told him briefly of their different timeworlds, how they had been snatched from them.

The grandee's eyes flashed fire.

" 'Twas the same with us of the Santa Rosa. We were Cadiz-bound from the New World when the terrible rending sensation plucked us to this extraordinary place." His expression changed. "One thing I have learned, though: the

turn to page 48

A SHORT HISTORY OF THE SPACE PROGRAM; OR, A FUNNY THING HAPPENED ON THE WAY TO THE MOON

article/JAMES GUNN

To the hard-core science fiction fan, there might be a bit of trouble figuring out just where space fiction and space fact separate these days.

"No one is going to say that science fiction readers and writers brought a man to the moon all by themselves, but we can say that the kind of science fiction that was published in the 1940s helped prepare the public for the acceptance of programs to take a man to the moon."—Isaac Asimov

Life does not come ordered neatly like an essay or a short story but in discrete and random packets like photons; the art of the writer is to find a pattern, to order the packets with neat connectives and transitions. The hope of the writer is that what he writes still resembles life.

The situation is further complicated when reality and dreams become intertwined.

To understand all this, to understand how dreams shaped reality and how reality reduced the dream, you must look at a scene from the past—this is reality (the clues from now on will be more obscure):

The time: 1954.

The place: a basement study.

A relatively young man—thirty-one—is sitting in front of an L. C. Smith office-style typewriter at a sawed-off library table. He is trying to imagine what space flight will be like, to write a series of stories about the next steps in man's conquest of space. They will be published in magazines and then gathered together into a paperback book called *Station in Space.* The first story, "The Cave of Night," will be included in a best-of-the-year collection and then dramatized on television's Desilu Playhouse as "Man in Orbit," with Lee Marvin and H. G. Marshall. Like the story, the television show features a scene in which Kansas City turns its lights off and on to signal a man orbiting the earth in his spaceship.

You also must imagine other scenes of other men imagining and writing, scenes retreating through the centuries almost two thousand years. And you must imagine not just writers but men and women of all kinds, as far back as they could raise their eyes to the night sky and see the great silver circle of the moon, waxing and waning, inconstant, controlling the tides and who knows what else, like a sister of earth with seas and plains and mountains and features; peopling that world with men and women or monsters or gods; dreaming of crossing the river of space that separated the two worlds, of setting foot on the moon.

Finally you must picture men and women holding in their hands the dream written into words on scroll or book or flaking pulp-paper magazine with lurid cover, living the dream in their imaginations. . . .

Apollo 17, the last moon shot *(moon shot*—does it remind you of Verne and the giant cannon, the *Columbiad,* built deep into the coil of Florida?), last of a series of rocket launches, vast gushings of liquid oxygen and hydrogen combining furiously into flame . . . and a frail capsule drifting precisely down a computer path in space toward earth's satellite, produce of a commitment to science and adventure and national supremacy, ending now with dwindling enthusiasm, even a bit of boredom and a counting of cost.

This one, the first night launch, delayed a bit on the launching pad by the

With the success of the Apollo program flight to the moon became science fact, after decades of speculation by science fiction writers.

failure of a relay and computer obstinacy. The human element seems lost in the vast mechanical array, the tall rocket itself, the platform and its service mechanisms, the intricate computer controls and sensors, the long room of men with their data displays, earphones, keyboards. . . .

And finally incredible thunder, the flaming heart of the sun revealed, the slender metal pillar balancing on a lengthening column of incandescence, lifting, accelerating, dwindling, carrying with it the command ship, *America,* and the lunar module, *Challenger.* . . .

We were suddenly caught by a whirlwind, which turned our vessel several times round in a circle with tremendous speed and lifted it more than three thousand stadia into the air, not setting it down again on the sea, but kept it suspended above the water at that height, and carried us on, with swelled sails, above the clouds.

After an aerial voyage of seven days and seven nights, we sighted land in the air. It was an island, luminous, spherical, and shining with strong light. . . .

He walked into the meeting room in Topeka's Ramada Inn where the lights and the cameras were waiting. He was medium tall, dark-haired, balding, tanned, athletically lean and firm. He was neatly dressed in red slacks, white turtleneck sweater, dark-blue jacket with a small metal sunflower in one lapel, a colorful Apollo 17 patch on his breast pocket. He wore red, white, and blue, the television newscasters called him "Captain America," his name was Ronald Evans, and he was one of two dozen men who had been to the moon, although only half of them had actually walked upon it.

"I'm really just a representative," he said, "not only of the other astronauts and the people who helped create the technology and the hardware but of our nation and of all the people who dreamed about it. I am a representative; I have a responsibility and my responsibility is to allow the rest of the people of our nation to share—one way or another—a part of the experience I had."

October 4, 1957—*Sputnik*. . . . shattering all the old American dreams, shredding the old Engine Charlie Wilson's who-cares-what-makes-grass-green anti-science, remolding American education, injecting concepts of haste, of primacy, into American space efforts. . . .

What science fiction writer would have predicted this way back from the moon?

November 3, 1957—*Sputnik II* . . . weight: about 1120 pounds, cargo: a live dog. . . .

January 31, 1958—*Explorer I* . . . weight: 31 pounds. . . .

October 4, 1959—Another U.S.S.R. satellite orbits the moon and for the first time photographs its mysterious far side. . . .

The whole trip, long though it is, lasts at most four hours. We cannot travel between the Earth and the moon when we want, for passage-time is limited to eclipses of the moon, those times when a patch of blackness moves over the eastern face of the moon. . . . We rush upon a person . . . and bear him aloft. This initial movement is most uncomfortable and dangerous, for the traveler is torn aloft and hurled over mountain and seas as if blown up by gunpowder. Thus, he must be put to sleep by narcotics and opiates, and his limbs must be carefully managed, lest his head be torn from his body when his body leaves the ground. The force of the repulsion must be distributed evenly over all parts of the body. After starting, the traveler meets new dangers, a terrible, bitter cold and lack of air to breathe. . . .

The dream of being a spaceman has been around for years. Primarily the part that I recall is the Buck Rogers days. . . . Now we as a nation have developed the capability of actually surviving on another planet. We have developed the capability of going anywhere in the universe we want to go. . . .

Twelve people have walked on the moon. six of us have been command module pilots who orbited the moon; another three on Apollo 8 were the first to actually orbit the moon; and the illfated Apollo 13 flight arced around the moon.

Two dozen people have been where many men have dreamed of being. . . .

April 12, 1961—*Vostok I* . . . Yuri Gargarin is launched into orbit, and the dream, in the process of being realized, is strangely altered: a Russian, not an American, is first into space. . . .

May 5, 1961—*Mercury-Redstone 3* . . . Alan B. Shepard's 15-minute suborbital flight, by comparison with the Russian achievement, is like a child's toss into the sea. . . .

May 24, 1961—President Kennedy reverses the direction set by President Eisenhower's science advisers, who disapproved an early attempt to land men on the moon, by proposing to Congress "that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to Earth."

July 21, 1961—Virgil I. Grissom exceeds Shepard's suborbital record by one minute; his capsule sinks. . . .

August 6, 1961—*Vostok II* . . . Gherman S. Titov spends more than a day in orbit and exults, "I am eagle!"

February 20, 1962—*Mercury-Atlas 6* . . . at last an American, John H. Glenn, circles the earth three times; as he passes over Perth, Australia, the city turns its lights off and on as a greeting to the first orbiting American astronaut. . . .

After Eleven daies passage in this violent flight, I perceived that we began to approach neare unto another Earth, if I may so call it, being the Globe or very body of that starre which we call the Moone. . . . My Gansa's staied their course as it was with one consent, and tooke their rest, for certaine howers; after which they took their flight, and within lesse than one hower, set me upon the top of a very high hill in that other world, where immediately were presented unto mine eyes many most strange and unwonted sights. . . .

When you're orbiting the moon you don't really feel as if you are in deep space—the moon is another body like the earth. But I had the opportunity to open the hatch on the command module. We were 180,000 miles from the earth, and I went out and walked in space. That's when you get the feeling for the first time that you really are out in space—it is black! You look off in one direction and you can see a small moon. You look off 180 degrees from that direction and you see the sliver of the earth. . . .

May 24, 1962—*Mercury-Atlas 7* . . . carries M. Scott Carpenter three times around the earth and lands him 250 miles from his target. . . .

August 11, 1962—*Vostok III* . . . Andrian G. Nikolayev spends nearly four days in space. . . .

August 12, 1962—*Vostok IV* . . . Pavel R. Popovich comes within three miles of Vostok III on his first orbit. . . .

October 3, 1962—*Mercury-Atlas 8* . . . Walter M. Schirra, Jr., orbits the earth six times. . . .

May 15, 1963—*Mercury-Atlas 9* . . . L. Gordon Cooper, Jr., makes the first long flight by an American, just short of a day and a half. . . .

June 14, 1963—*Vostok V* . . . Valery F. Bykovsky spends five days in space. . . .

June 16, 1963—*Vostok VI* . . . the first woman in space, Valentina V. Tereshkova, passes within three miles of Vostok V. . . .

April 3d. I found the balloon at an immense height indeed, and the earth's convexity had now become strikingly manifest. Below me in the ocean lay a cluster of black specks, which undoubtedly were islands. Overhead, the sky was of a jetty black, and the stars were brilliantly visible; indeed they had been so constantly since the first day of the ascent. . . .

April 11th. Found a startling diminution in the apparent diameter of the earth, and a considerable increase, now observable for the first time, in that of the moon itself, which wanted only a few days of being full. It now required long and excessive labor to condense within the chamber sufficient atmospheric air for the sustenance of life. . . .

I was tied to the spacecraft and connected to my oxygen umbilical, but space is so vast you never really got the feeling that you wanted to let loose. There were bars on the outside of the spacecraft that I moved along, reaching out with one hand at a time. I never wanted to let go with both hands at the same time. That was my one contact with life. . . .

October 12, 1964—*Voshkod I* . . . the first three-man spacecraft orbits with Vladimir M. Komarov, Konstantin P. Feoktistov, and Boris G. Yegorov. . . .

March 18, 1965—*Voshkod II* . . . Alexei A. Leonov and Pavel I. Belayev spend more than a day in space; Leonov becomes the first man to step out into space. . . .

March 23, 1965—*Gemini 3* . . . Virgil I. Grissom and John W. Young perform the first manned orbital maneuvers. . . .

June 3, 1965—*Gemini 4* . . . James A. McDivitt and Edward H. White, II, spend more than four days in orbit; White "walks in space" for 21 minutes.

August 21, 1965—*Gemini 5* . . . L. Gordon Cooper, Jr., and Charles Conrad, Jr., are in space for nearly eight days. . . .

December 4, 1965—*Gemini 7* . . . Frank Borman and James A. Lovell, Jr., orbit for nearly fourteen days. . . .

December 15, 1965—*Gemini 6-A* . . . Walter M. Schirra, Jr., and Thomas P. Stafford rendezvous within one foot of Gemini 7 . . .

Thirty-five!—thirty-six—thirty-seven!—thirty-eight!—thirty-nine!—forty! FIRE!

Instantly Murchison pressed with his finger the key of the electric battery, restored the current of the fluid, and discharged the spark into the breach of the Columbiad.

An appalling, unearthly report followed instantly, such as can be compared to nothing whatever known, not even to the roar of thunder, or the blast of volcanic explosions! No words can convey the slightest idea of the terrific sound! An immense spout of fire shot up from the bowels of the earth as from a crater. The earth heaved up, and with great difficulty some few spectators obtained a momentary glimpse of the projectile victoriously cleaving the air in the midst of the fiery vapors! . . .

Do you think the time will come when people will have adapted sufficiently to the space environment that they will be able to let go with both hands?

Definitely. We will develop that capability in the very near future—this year—in what we call the "skylab" program. It will include a maneuvering unit with which we can control ourselves in space. That's going to be the greatest feeling ever—to be able to maneuver independently and not feel that you have to hang onto something. You can go where you want to go—a true Buck Rogers experience. . . .

March 16, 1966—*Gemini 8* . . . Neil Armstrong and David R. Scott dock with an Agena target, although their mission is cut short. . . .

June 3, 1966—*Gemini 9-A*—Thomas P.

Stafford and Eugene A. Cernan combine a rendezvous, extravehicular activity, and a precision landing. . . .

July 18, 1966–*Gemini 10*. . . John W. Young and Michael Collins rendezvous with two targets and retrieve an Agena package. . . .

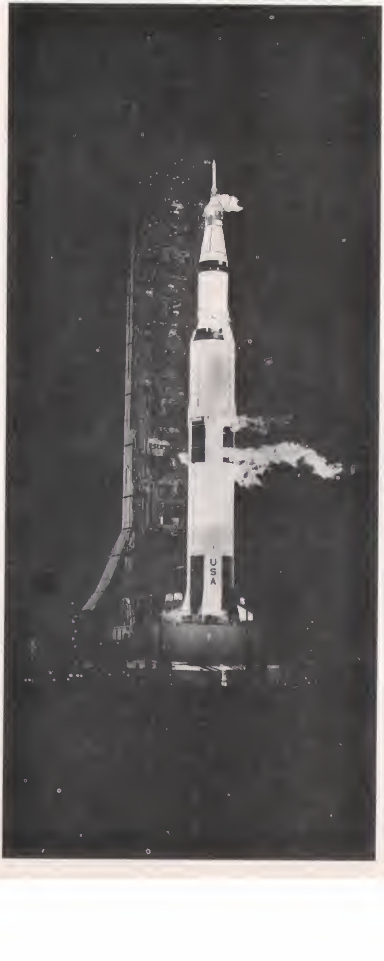
September 12, 1966–*Gemini 11* . . . Charles Conrad, Jr., and Richard F. Gordon, Jr., rendezvous and dock. . . .

November 11, 1966–*Gemini 12* . . . to make 1966 a United States space year, James A. Lovell, Jr., and Edwin F. Aldrin, Jr., close out the Gemini program with three successful extravehicular trips. . . .

I remember how one day Cavor suddenly opened six of our shutters and blinded me so that I cried aloud at him. The whole area was moon, a stupendous scimitar of white dawn with its edge hacked out by notches of darkness, the crescent short of an ebbing tide of darkness, out of which peaks and pinnacles came climbing into the blaze of the sun. I take it the reader has seen pictures or photographs of the moon, so that I need not describe the broader features of that landscape, those spacious ringlike ranges vaster than any terrestrial mountains, their summits shining in the day, their shadows harsh and deep, the gray disordered plains, the ridges, hills, and craterlets, all passing at last from a blazing illumination into a common mystery of black. Athwart this world we were flying scarcely a hundred miles above its crests and pinnacles. And now we could see, what no eye on earth will ever see, that under the blaze of the day the harsh outlines of the rocks and ravines of the plains and crater floor grew gray and indistinct under a thickening haze, that the white of their lit surfaces broke into lumps and patches, and broke again and shrank and vanished, and that here and there strange tints of brown and olive grew and spread. . . .

I don't believe there is anything any more that we can call science fiction. Anything men want to do they can do. Nothing is impossible if man wants to do it. I think that history will tell that during the last few years, through the space program–Mercury, Gemini, Apollo–for the first time man developed the capability of living beyond our earth. . . .

January 27, 1967–Spaceflight has been described as "the safest way to travel," but proof of its inherent danger, confirmation of the secret fears that



Apollo 13 the night before man left for the first lunar landing, an event S-F fans had been waiting for all their lives, about to come true.

lurked behind its mask of cool competence, comes with a flash fire during a simulated countdown of *Apollo 1* that kills Virgil I. Grissom, Edward H. White, and Roger B. Chaffee. . . .

April 23, 1967–*Soyuz 1* . . . Vladimir M. Komarov dies when his descending capsule plummets to earth, its main parachute fouled. . . .

October 11, 1968–*Apollo 7* . . . Walter M. Schirra, Jr., Donn F. Eisele, and R. Walter Cunningham ride the first manned Apollo spacecraft for more than 260 hours. . . .

October 26, 1968–*Soyuz III* . . . Georgi T. Beregovoi rendezvouses with unmanned Soyuz II. . . .

December 21, 1968–*Apollo 8* . . . Frank Borman, James A. Lovell, Jr., and William A. Anders travel around the moon. . . .

He sat very quietly, rubbing his hands against the soil of the Moon and sensing the curiously light pressure of his body against the ground. At long last there was peace in his heart. His hurts had ceased to pain him. He *was* where he had longed to be—he had followed his need. Over the western horizon hung the Earth at last quarter, a green-blue giant moon. Overhead the Sun shone down from a black and starry sky. And underneath the Moon, the soil of the Moon itself. He was on the Moon!

He lay back still while a bath of content flowed over him like a tide at flood, and soaked to his very marrow. . . .

Are men ever going to colonize the moon?

Man already has colonized the moon—for three days. All we need is a bigger house to stay in. A lot of hydrogen comes off the sun. A lot of oxides are in the moon rocks. Put the hydrogen and oxygen together and you've got water. We've got power; in fact, we left five atomic generators—about two feet tall and six or eight inches in diameter—on the moon, and they're still working. Once you've got water and power you have the ability to survive indefinitely.

Do you dream of setting your foot on Mars?

That would be an ideal dream. But that's going to be a few years down the road. We'll have unmanned projects going to Mars, but we're just in the Model T stages of space exploration. We could go to Mars now if we wanted to, but the trip would take a year and we'd want some of the niceties that go along with normal living before we really shoved off for a year in space.

January 15, 1969–*Soyuz IV* . . . Vladimir A. Shatalov is hurled into orbit and. . . .

January 15, 1969–*Soyuz V* . . . so are Boris V. Volyanov, Alexei S. Yeliseyev, and Yevgeni V. Khrunov for a rendezvous in which Yelizeyev and Khrunov transfer to Soyuz IV. . . .

March 3, 1969–*Apollo 9* . . . James A. McDivitt, David R. Scott, and Russell L. Schweickart dock with the lunar module. . . .

May 18, 1969–*Apollo 10* . . . Thomas P. Stafford, Eugene A. Cernan, and John W. Young descend within nine miles of the moon. . . .

July 16, 1969–*Apollo 11* . . . Neil A. Armstrong, Edwin E. Aldrin, Jr., and Michael Collins take off for the moon, Armstrong and Aldrin descend to the surface in the lunar module, and Armstrong puts man's footprint in the dust of the moon. . . .

The crew was hoisted far up into the nose section of the three-stage rocket. It stood as tall as a 24-story building. . . . The takeoff was all calculated and impressed on the metal and glass and free electrons of an electronic computer.

The ship was tightened down methodically. The spectators scurried back from the base of the ship. We waited. The ship waited. Tall and slim as it was, it seemed to crouch. Someone counted off the seconds to a breathless world: ten—nine—eight . . . five, four, three . . . one—*fire!*

There was no flame, and then we saw it spurting into the air from the exhaust tunnel several hundred feet away. The ship balanced, unmoving, on a squat column of incandescence; the column stretched itself, grew tall; the huge ship picked up speed and dwindled into a point of brightness.

The telescopic lenses found it, lost it, found it again. It arched over on its side and thrust itself seaward. At the end of 84 seconds, the rear jets faltered, and our hearts faltered with them. Then we saw that the first stage had been dropped. The rest of the ship moved off on a new fiery trail. . . .

The space shuttle is going to revolutionize the space program because we will be able to put something into space for one-tenth the cost. Space becomes a commercial possibility. The Wright brothers, when they developed the airplane, had no way of knowing its commercial possibilities. But others saw those possibilities and said, "Hey, I can ship something faster and get my product to my customers faster if I put it on an airplane." And that's the way it's going to be with the space shuttle.

A funny thing happened on our way to the moon: the dream faded, people began turning off their television sets, one Apollo flight, one astronaut, began bleeding together and the little differences—color television, a new moon location, a Moon Rover, a real geologist—no longer sufficed to distinguish one from another. Men began counting the cost: $24 billion to put a man on the moon. . . . If we can put a man on the moon why can't we solve our traffic problems or pollution problems or peace problems or racial problems or poverty problems . . . ? If we had applied that money to poverty or education or finding a cure for. . . .

Part of the trouble was that the engineers took over and pushed out the dreamers: in spite of the symbiosis of the space program and television the process was deglamorized, the astronauts were depicted as ordinary men, the apparatus—the world's biggest rocket, the colossal Vehicle Assembly Building, the land crawler, the launching pad, the vast, interminable views of technicians by the hundreds watching their screens—became the hero and dehumanized the accomplishment. Even the language—perhaps most of all the language—was prosaic: ascent stage, command module, extravehicular mobility unit, lunar module, lunar orbit insertion, portable life-support system, space walk.... Everything may have been A-OK; all systems may have been go; but the romance had fled.

And the dream faltered in a gray democratic fallacy, without a poet, without even a language in which to imagine itself. . . .

There is a sameness to them, *he thought.* A dedication, a mania that molds their feature, a look to the eyes as if they were fashioned for seeing more distant vistas than other men. There were all shapes and colors and faces, but the differences only emphasized their kinship. They came from identical molds labeled: "Experiment—Homo Spatium."

They were marked men. Marked not just by the deep tan of unfiltered ultraviolet or the cataracts of heavy primaries but by a common experience and a dream shared, marked so that all men might know them and say, "There goes a spaceman."

I firmly believe that we will explore our solar system--we have the capability now; all we need is the desire. Beyond that—well, there have to be other solar systems. There have to be other intelligent beings somewhere. Going there is the next big step.

Will we come in contact with them? I'm sure we will.

Will we go to them or will they come to us?

You always like to be the man who comes up and says, "Hello, I'm from Earth," rather than have someone come up behind you and say, "Hi there! I'm from Alpha Centaurus."

They had their poetry, these men. Space forced it on them, made them see life differently, made them invent words to express it. . . .

Neil Armstrong: "I remember on the trip home on Apollo 11 it suddenly struck me that that tiny pea, pretty and blue, was the earth. I put up my thumb and shut one eye, and my thumb blotted out the planet earth. I didn't feel like a giant. I felt very, very small."

Bill Anders: the sight of earth from space evoked "feelings about humanity and human needs that I never had before."

Rusty Schweickart: "I completely lost my identity as an American-astronaut. I felt a part of everyone and everything sweeping past me below."

Tom Stafford: "You don't look down at the world as an American but as a human being."

Michael Collins: "I knew I was alone in a way that no earthling had ever been before."

Ed Mitchell: "You develop an instant global consciousness, a people orientation, an intense dissatisfaction with the state of the world and a compulsion to do something about it."

I've seen what no man has ever seen before. . . . I was the first. That's something . . . worth dying for. . . .

"I've seen the stars, clear and undiminished. They look cold, but there's warmth to them and life. They have families of planets, like our own sun, some of them. . . . They must. God wouldn't put them there for no purpose. . . . They can be homes to our future generations. Or, if they have inhabitants, we can trade with them: goods, ideas, the love of creation. . . .

"But—more than this--I have seen the Earth. I have seen it—as no man has ever seen it—turning below me like a fantastic ball, the seas like blue glass in the Sun . . . or lashed into gray storm-peaks . . . and the land green with life . . . the cities of the world in the night, sparkling . . . and the people . . ."

Ten to fifteen or twenty years is a reasonable time scale for landing a man on Mars or for colonizing the moon. It might come sooner, but in order for it to come sooner we'd have to commit ourselves as a nation to landing a man on Mars within a shorter time. Whatever goals we wish to set for ourselves we can accomplish.

When will we set off on our first interstellar expedition? Fifty years?

Probably more than that. But I hope I'm wrong. And I hope we're both around to see it.

Either because it comes sooner or because we've discovered immortality?

Right.

The last trip to the moon, the newsmen called it. *Apollo 17.* Eugene A. Cernan, spacecraft commander; Harrison A. Schmitt, lunar module pilot; Ronald Evans, command module pilot.

The last trip. . . . New priorities, other dreams.

But old dreams die hard.

If men remember the Twentieth Century, they will remember it not for its wars and inventions, its revolutions and social programs and great men, but as that time when man finally reached the moon.

Men will remember. They will go back to the moon. . . .

THE DREAM
(in italics)
(in order)

The True History, Lucian of Samosata, 2nd Century A.D.
Somnium, Johann Kepler, 1634.
The Man in the Moone, Bishop Frances Godwin, 1638.
The Unparalleled Adventures of One Hans Pfaall, Edgar Allan Poe, 1835.
From the Earth to the Moon, Jules Verne, 1865.
The First Men in the Moon, H. G. Wells, 1901
"Requiem," Robert Heinlein, *Astounding Science Fiction,* January, 1940.
"The Cave of Night," James Gunn, *Galaxy Science Fiction,* February, 1955.
"Powder Keg," James Gunn, *If,* April, 1958.
"The Cave of Night," *op. cit.* ○

Somehow, even though it didn't turn out looking like what we had guessed back in the old, pre-space days, it's still great to read about the dreams of the moon* and *the reality.

Harry's problem was that he had never learned the simple truth that it is unwise for an employee to appear to be smarter than his employer. Especially when he actually is smarter.

Harry Logan, stop messing around with that junk and Get A Job!"

"Yes, dear." It used to be a daily ritual. Now it was three or four times a day. If he'd been musically inclined, Harry could have set it to music: Chorale and concerto for percussion and nagging wife. GET A JOB, BOOM BOOM, YES DEAR, YES DEAR, GET A JOB, BOOM BOOM, YES DEAR, YES DEAR . . .

"I mean it, Harry. I can't pay the grocery bills, there's the doctor, and Shirley's orthodonist, and Penny's is sending our account to a collection agency. You've got to Do Something Before I Go Out of My Mind!"

"Yes dear." He didn't raise his eyes from the microscope ($65.00 surplus from Los Angeles City College, a good buy, I *need* it, Ruth. I can use it to make some money.) After a while he heard her retreating footsteps.

This was a preliminary skirmish. She'd be back with the main force attack later. But for now . . . Outside, the rooster squawked loudly and drove a young opossum away from his harem. The dog barked and ran ashamedly to help the scrappy little cock. The dog got a piece bit out of his ear for reward. Harry gratefully left the microscope with its dirty slide and listened to the sounds of peace.

The letters from his last job enquiries were on his desk, but he'd been afraid to tell Ruth. They all said the same thing. Dear Mr. Logan, we are very pleased that you have considered our company as a possible employer. However, at this time we have no position suitable for a man of your unique talents. Please be assured that we will keep your application on file . . .

Harry knew why they didn't want him. He had no college degrees. In fact, he'd never been inside a college in his life, and there were dozens, hundreds, thousands of new engineering graduates looking for work. What chance did a company trained engineer have for a professional position? He'd tried starting over, but that was no good either: with three published papers on solid state physics and four patents to his credit he was over-qualified to be a technician. No engineer wanted a lab tech who knew more than his boss.

Harry was sure that the constant fights he'd had with company administrators had nothing to do with his rejections. He'd been *right* every time. But somehow, after the companies *learned* that, they still wouldn't hire him . . .

His research wasn't going well. His papers were rejected by reputable journals as too far out and he couldn't write down for the popular science magazines. Nothing was going well, and the cold reality gnawed at his guts. What in hell *am* I going to do? he thought. It was a moment of panic.

The house was paid for (Harry, you should have kept title to that patent, not sold it outright! Harry, you have no business sense at all! But Ruth, I wanted to keep the patent and you said we had to have a house . . .) At least they couldn't take the house. But he couldn't raise chickens out here in the Tujunga Wash anymore. The Los Angeles City Department of Health had sent a complaint. His house was miles from any other habitation, but somehow it was inside the city limits . . .

He stood for a moment by the desk, then paced nervously to his work bench. The blasted circuit ought to work, why didn't it? But growing integrated circuitry was a tricky thing and he had only the most primitive equipment to work with. He thought about that. Sometimes, Ruth took off her wedding ring to do the dishes, and he could pawn it for . . .

He didn't finish the thought. There was a knock on the workroom door and Logan looked up in surprise.

"Harry Logan?" the man asked. There was an accent to the voice, probably Canadian. An ordinary man: big framed, going bald, dark hair where he had any. Stocky and tough, but well dressed. "You are Harry Logan, aren't you?"

"Yes," Harry admitted. It was an admission: the last guy who came to see him had been a bill collector and this guy was built like one.

"May I come in?"

"You're already in. I don't think I know you."

"David McClellan. Before we waste each other's time, are you the man who published that far-out thing about the future of solid-state physics in Tele-Tech? Also the article speculating about unknown forces?"

"Yes." The unknown forces article had got him fired from his last job. His descriptions of equipment he used in the research made it plain he was working on that problem despite orders to abandon it. Who'd have thought the Director would read a thing like that? "Yeah, I wrote them."

"Good. I've got a consulting job for you."

"What kind of work?" Harry asked. No good to sound too eager. "I'm a little busy, but—"

"You'll be well paid. Besides, you'll learn something new. I guarantee it." The man was assured, and his confidence was infectious. Logan found himself looking forward to whatever McClellan had in mind. What did 'well paid' mean? Anything was good pay now . . .

McClellan was still talking. "But you don't have a working telephone so I couldn't call for an appointment. Glad to find you in."

"Eh—oh, sure." Damn phone company. He'd always paid his bills eventually . . . "Where is this work?"

"Canada. I want you to come with me right away."

Logan brought up the subject of money. It wasn't any problem. McClellan took a thousand dollars from his wallet and handed it over. It was an expensive wallet, and it looked full.

Ruth exploded as expected. McClellan wouldn't say where they were going. He seemed obsessed with secrecy about the whole project, and Ruth took Harry's inability to be precise for deviousness.

"Off to Canada with some bum you just met! Can't say where! Harry Logan, you're Up To Something! You're going off to drink again, and I won't put up with it, Harry Logan, now you listen to me, you take one drink and you can't stop, I know all about you, you're not going off to any . . ."

She was speechless for the first time in years as Harry shoved a thousand dollars at her. He was tempted to stuff it into her mouth . . .

Where in hell are we going?" Harry asked. It seemed a reasonable question. They'd landed in Vancouver, taken a small turbo-prop north to Dawson, and immediately drove away from the airport in a Rover. Now they'd left the highway and started off into rugged hill country. McClellan hadn't said three hundred words since they left Tujunga Wash.

"You'll see soon enough." The country got wilder, pine trees and scrub brush, and they turned off the gravel road onto an unmarked dirt track. Harry had to hold on to keep from being jounced out of his seat. After they were a half mile in, the trail vanished. McClellan swung off into the forest, driving over dried pine needles that blew over their tracks in the stiff breeze.

"Timber country," McClellan said. "Nobody comes here but me. I own it."

They passed weathered No Trespassing signs, forded a small creek, bounced across another rocky flat, and plunged into more thick woods; then they topped a small rise at the edge of a tiny clearing, and there it was.

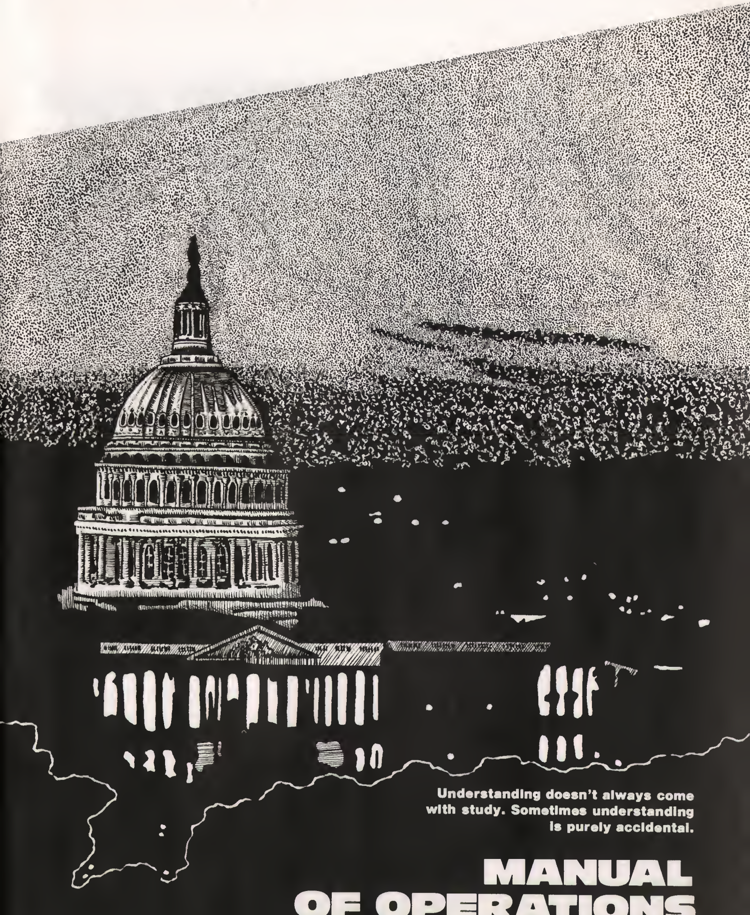
Logan had a brief impression of a logging camp. Log shack covered with mud. A generator trailer. Camp fire, with a wiry bearded man squatting in front of it. None of these really registered, because the little clearing was dominated by an alien shape.

That was the first thing Harry was sure of. It was wrong. Alien. The color was wrong, the shape was wrong, everything about it. Then he looked for details.

The ship was round, about twenty feet in diameter, and swept up in thickness from infinitesimal at the edges to about seven feet in the center. The cross-section shape was part of the alien impression: it thickened in a series of compound curves not smoothly blended into each other.

It wasn't perfectly round. From above it would have looked like a distorted circle, but there was no conic section that could describe it. One end was elongated and flattened, with its thin edge stretching out another four or five feet, no thicker than a man's hand at the greatest dimension, undulating in waves of curved sections that made no sense.

The whole ship was a dull metallic grey-green, and it shined, not brightly, and not evenly over its surface; when he tried to look closely Harry saw that it was the light pattern that gave an illusion of motion to the hull sections. The ship didn't change shape, but the glowing areas moved in rippling patterns



Understanding doesn't always come
with study. Sometimes understanding
is purely accidental.

MANUAL OF OPERATIONS

fiction/Jerry Pournelle
artist/Rodger MacGowan

across the surface.

Harry turned to his companion. The man was watching Logan curiously. "A flying saucer," Harry said. "Yours?"

McClellan laughed. "It is now." He raised his voice to a shout. "Al, he thinks we're little green men! He asked if it was mine!"

The bearded man laughed with them as he came to the Rover. "I'm Al Parish, Mister Logan." Parrish held out a lumberjack's hand and crushed Harry's. "Do we look like we could build that thing?"

"No. All right, what's the story."

"Come sit by the fire and have a drink," McClellan answered. "We're going to tell you."

David McClellan owned timber lands. He'd inherited them and was happy to live off the income. He also liked to hike in his woods. "And one day—there it was," he finished.

"But—who brought it here? What about the crew?"

McClellan shrugged. "Nothing. It was like you see it here. And there's no strange bones around, nothing here at all. Maybe the crew got killed by rattlers and dragged off by scavengers. Maybe anything, but they're gone. After I poked around for a week I went and got Al."

"I'm an engineer," Parrish added. "Not much of one, maybe, but the only engineer Dave knew. And this thing is driving me crazy. When I talked to the professors at the university about some of the effects I got they told me I'd been drinking. Nothing like that could ever work. So I remembered the articles you wrote and Dave went to get you."

"Thanks," Logan said. He meant it. "But aren't you going to tell the government?"

"Hell no!" McClellan exploded. "They'd thank us and never let us near it again." He spat into the fire. "I want that ship, Logan. It's mine."

Harry could understand that. He'd had his problems with administrators. He didn't care if the government never found out about it. "You think it uses advanced solid state devices, huh?"

"Has to be something like that," Parrish answered. "I can't even find the power source. It's got one, you see things work, but no power. No wires, nothing, just blocks of glop. Lots of those, but I can't see what they connect to or even how they connect." Al poured an enormous mug of coffee, drank half, and filled it to the top with Christian Brothers brandy. Harry looked at it hungrily, but he knew better. Ruth was right more often than he wanted to admit.

"Near as I can figure," Parrish said, "this thing operates with some force nobody on earth ever heard of. And you wrote about that, and about the future of solid state work—hell, at least you'll admit it's possible for the ship to work!"

"Can I look at it?"

"Yeah." McClellan seemed reluctant. "But be careful. We don't know what does which to what. You might put us out in the orbit of Saturn."

It seemed as strange inside as out. The entrance was two doors four feet high with a two foot space between them, an obvious airlock that a man might just barely have crammed himself into. Both sliding doors were open, and somebody had wedged them into their recesses with pine logs.

"Haven't been able to close this ship up," Parrish explained, "but I didn't want to take any chances. Be hell to be trapped in here."

The inside was one big chamber about the shape of the outside of the ship. Three chairs which would have been perfect for small human children were bolted to the steel-gray deck. The chairs swivelled and were equidistant around a circular console in the center of the ship. The console had a shelf two feet off the floor and a sloping panel inboard of that rose nearly to the top of the cabin. The panel was a jumble of translucent plates, many of them marked with squiggles that might have been Arabic but Logan was sure it wasn't.

"Near as I can figure, the panels above the console are some kind of screens," Parrish told him. "But there ain't nothing behind them, so I don't know. Course, they might be kids' greasepaint boards for all I know."

"Kids?"

"Sure. Whole thing could be a toy. Look at the size. Like a doll house. Admit it isn't likely, but then the ship isn't likely either."

"That's for sure." Harry was just able to stand in the space next to the console. Everywhere else the ceiling was too low and he had to crouch.

Parrish showed him around the ship. Under one chair was a gismo with an air scoop sticking out of a solid box. Big pipes led from the box to a tank, and a steady stream of air flowed from the tank.

"What kind of air does it make?" Logan asked.

"About like ours, only feel. Hot, and wet as hell. Little more oxygen too."

"What else works?"

"Funny about that," Parrish said. "Sometimes lights flash. Sometimes we hear noises. Nothing predictable, and no way to control any of it. Look, there's not even controls to work, no knobs or switches. Least, nothing we can recognize as a control," he added thoughtfully. "Maybe it's like somebody in the Middle Ages finding a radio—he'd never know what switches and knobs were."

They went back outside, although Logan wanted to remain in the ship. The others persuaded him; he'd have plenty of time to look at it, and it gave them the creeps in the dark. Before they left Parrish lifted a deck plate. The thin grey metal section came away easily to reveal a mass of brightly colored rectangular shapes varying in size from larger than an attache case to smaller than a matchbox. The blocks fitted together perfectly and couldn't be pulled out, but when Parrish touched one corner with a steel screwdriver they popped out easily. There weren't any connections Harry Logan could see; the blocks were of uniform texture, like hardened epoxy. When replaced they fitted together again like a parquet floor, and couldn't be removed by force.

"See what I mean about advanced solid state?" McClellan asked. They sat around the campfire and ate shishkebob while Parrish told what he had tried.

He had used every detection device he could think of with no result whatever. Oscilloscope, voltmeter, electroscope, they all gave the same result. "That ship's electromagnetically dead," Parrish said. "It's all at ground potential. Except for one thing, that flat surface dead aft—well, I think it's aft, but what the hell, there being no windows or anything, how would I know? Anyway, that flat place is a south pole. Damn strong one, I had to use the Rover to pull my magnet off it. But it only attracts north poles, repels south ones, and has no effect on non-magnetized iron. It's directional, and there isn't a north pole on the ship. How's that grab you?"

"A monopole?" Harry asked. "Could it be the drive?"

"Damned if I know. I don't think it's strong enough to lift the ship. For that matter, nothing I think of can lift that ship."

"What do you mean?"

Parrish shrugged and pulled another chunk of steak off the skewer. "It's heavy. Or it's rooted in place, take your choice. Tried jacking it up and broke the Rover's jack. Got a big fifty ton hydraulic job and managed to push the jack down into the ground. That ship doesn't lift. It's enough to drive me crazy."

"Yeah." Logan stared into the campfire.

Parrish took the dirty dishes and put them in a bucket to soak. "Wash up in the morning. Now for something I've been waiting for since we found that thing," he said. He went to the Rover and got out a case of brandy. "Didn't have but a couple of bottles to last me and had to stay sober while you were gone . . . after playing with that thing, I want to get drunk." He looked at the brandy with affection. "Have a drink, Harry Logan. You too, McClellan, you old stick."

Why not? Harry thought. One drink wouldn't hurt. Might open up his subconscious. Parrish had tried every test Harry could think of, maybe something would come to him. One drink.

By midnight they were all singing. At one in the morning, McClellan was making speeches denouncing the government, which he suspected of wanting to take his ship for income taxes. By two they went over to be sure the ship was still there.

They squeezed into the cabin, and Harry was just able to sit in one of the chairs. The others were too big. It was dark, and Harry couldn't see a thing. "Wish there was some light."

The lights came on, a soft glow from the walls with no bright spots.

"What the hell did you do?" McClellan demanded.

"I thought at it," Logan answered. "Shee, it's simple, you think at it and she does what you want. Watch." He thought at the screens. A globe sprang into view on the panel above him. It was a holograph somehow projected into a piece of plastic a half inch thick.

McClellan and Parrish crowded against Logan's chair. "But how could it work?" Parrish asked.

"Who cares?" Harry answered thickly. "Let's get her moving!" He shouted at the ship. "Lift off!"

Nothing happened.

Logan made a face, then formed a mental picture of the ship rising from the ground.

Harry didn't feel a thing. McClellan and Parrish shouted something. A cold wind blew on his neck and Harry looked around. The cabin was empty, the wedged doors gaping behind him, and through them he saw the lights of a small town rapidly falling away below. "Jesus Christ!" he shouted. A bearded face appeared on the screen.

"I've got to get down! Take me down!" He thought of descending. The ship plummeted. "Gently." He pictured that. The rapid descent slowed.

He tried to think of places to take the ship. Crazy thoughts flashed through his mind: the alps, and they appeared on the screen above. Taj Mahal. New York City. Each time, the screen pictured it, and the ship seemed to turn.

Parrish and McClellan. What had happened to them? The screen showed nothing. Harry tried again: what happened if you fell out? The screen showed something—not really a man, but humanoid—falling through the doors and being gently lowered to the ground below. The ship still whipped around, and the ground he could see through the doors whirled, but Harry felt no motion at all. He tried to stand and was slammed back down into the chair with horrible force, and he almost passed out.

Where to go? The ship could take him anywhere . . . the moon, the planets . . . a picture of an airless world pitted with craters formed on the screen. Mars! She'd take him to Mars! First man there . . .

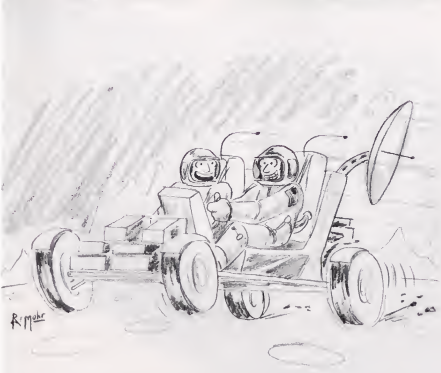
Harry choked for breath. Anoxia. The word swam somewhere in his mind, but he didn't care. His ship! It could do anything! Harry Logan was the most powerful man in the world! They'd have to listen to him now . . .

The screens faded, everything was getting grey, but Harry didn't care. It was wonderful up here, and Harry Logan was master of the world. He could make them . . . he could . . .

The Pentagon. The enormous building formed on the screen as Harry thought of it. That was the place to go. Take the ship to the Pentagon and make the United States listen to Harry Logan. All the world problems were so simple once you saw them right. And those companies who'd fired him, they'd be sorry. But Harry Logan wouldn't use his ship for revenge. He'd bring peace and happiness to the world. Pentagon, that's the ticket. Right into the little courtyard in the middle of the hollow Pentagon, right there in the five sided funny farm, Harry Logan would set up his throne . . .

He didn't know how long it took but he was there. Thickset windows pierced dirty granite walls all around him. The ship rested on trampled grass. Logan grinned and tried to stand up again. It was all right. The ship waited obediently. Harry went to the hatchway and took the logs out. He needed sleep, and he didn't want anyone messing with his ship while he got it. The inner log came out easily, but the ship had tried to close the outer door and the log was jammed in good. Harry had to climb out to get a grip on it. He tugged hard, and the log came away and fell on top of him.

turn to page 69

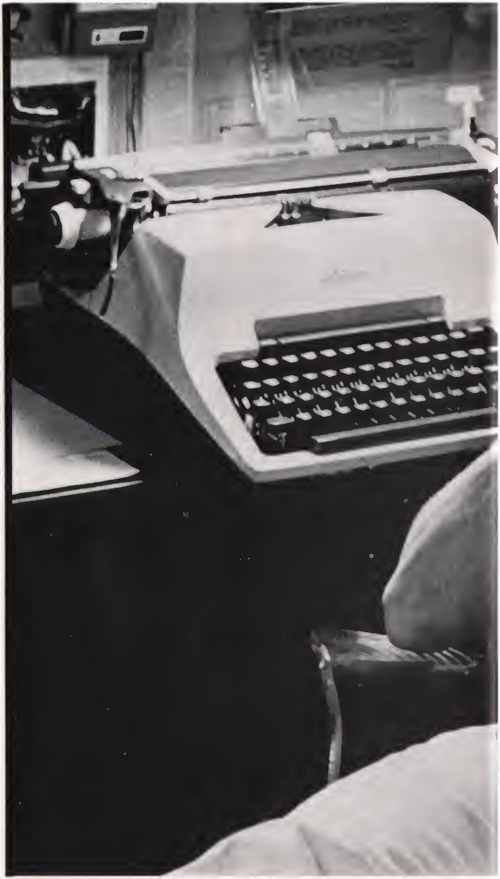


"Now, isn't this more fun than collecting some stupid ol' moon rocks?"

VERTEX INTERVIEWS HARLAN ELLISON

interviewer/Arthur Byron Cover

photos/JEFF DOWDEN



Harlan Ellison has written of himself, *"If you want consistency, look for it in the graveyard; I'm a flawed, miserable human being and I'm not responsible for my own contradictions."*

Like Nero Wolfe, he believes that a person who has spent the better part of his life acting eccentric should not suddenly do the expected at the drop of a hat. He hates leaving his house; he spends approximately three months each year on the road. He is quick at accepting writing assignments, if the money is right; he rarely finishes them on time and is responsible for most of the grey hair in Hollywood. He refuses to cop to the pun behind his collaboration with Ben Bova, "Brillo"; yet he has christened his house "Ellison Wonderland." Most of his work examines pain and hatred in every conceivable detail and variation; yet his kindnesses to friends, young writers, and even casual acquaintances are well-known.

Only a few of the seemingly endless contradictions of the life and work of a fantasist whose stories have become staple items of science fiction enthusiasts throughout the world.

Ellison was born in Cleveland, Ohio in 1934. He spent his childhood in a small town thirty miles east of Cleveland, a town named—significantly enough as far as he was concerned—Painesville. The contradictions of his life started early; Ellison was the victim of anti-Semitism while the United States was at war with Hitler's Germany.

Ellison ran away from home when he

The biggest hindrance (to science fiction) is fans and their adolescent antics that fascinate cheapjack newspaper attention.

". . . Women are writing many of the things male sf writers thought could never be written; they are opening up whole new areas to us . . ."

was thirteen, the first of many such escapades. Before he was eighteen, he had worked at a mind-boggling array of jobs. After his father died in 1949, he moved with his mother to Cleveland and graduated from a switchblade school, East High. In 1950 he discovered science fiction, and at once became one of the founders of the Cleveland SF Society. He became friends with most of the writers in the field, many of whom—such as Lester del Rey, Algis Budrys, H.L. Gold, Larry Shaw and Andre Norton—encouraged him to write. He attended Ohio State University for a year and a half to cultivate his writing abilities, but his creative writing professor assured him he had no talent; Ellison's reply got him thrown out of school.

The beginning of Ellison's professional career is no less of a contradiction than anything else about the man. The celebrated author of "A Boy and His Dog" and "I Have No Mouth and I Must Scream" made his first sale to *Infinity Science Fiction* in 1955; the story, "Glowworm," was called by James Blish "the single worst story ever written in the field." For many years it looked as if Ellison would do no better. The collections of his *best* stories from that early period are unreadable.

But in 1957 much of his fiction outside the sf field began to slowly improve; Ellison was finding his voice. "Daniel White for the Greater Good" and *Memos from Purgatory* were optioned for television; Ellison moved to Hollywood. In 1962 Dorothy Parker reviewed *Gentleman Junkie* in *Esquire,* the only paperback original so honored. Soon afterward his science fiction became excellent; "Paingod" and "'Repent, Harlequin!' Said the Ticktockman" were published. He worked frequently in television and movies, writing seven of the best scripts for "Burke's Law" and in 1970 a screenplay modestly entitled "Harlan Ellison's Movie."

Ellison firmly established his position as an important force in the sf field with the publication of *Dangerous Visions* in 1967. An anthology of 33 stories by 32 current sf writers, the book was so successful that soon afterward a sequel, *Again, Dangerous Visions,* was planned. Somewhere along his path to find the best science fiction being written, Ellison lost control of his project; it seemed as if he was buying stories from anyone who could type half-decently; the sequel was split into two sequels. *Again, Dangerous Visions* was published in March of 1972. While its impact was not as great as its predecessor, its quality was just as high, its experiments were more daring, and its weight was astounding. Rumor has it that *The Last Dangerous Visions,* to be published in 1974, will dwarf the first two books.

Ellison's home is furnished in either loud good taste or in outrageous bad taste, depending on the preferences of the beholder. It is crammed with books, records, memorabilia, teakwood, Diane and Leo Dillon paintings, orange rugs, yellow rugs, and red rugs. Usually it is crammed with people as well.

The interviewer, Arthur Byron Cover, has spent a total of six months sleeping on the living room couch in Ellison Wonderland and has seen Ellison function in many types of situations. He saw Ellison screaming for milk in an all-night snack bar at six in the morning in New Orleans. He saw police ask Ellison if he was violating the Los Angeles curfew by being outside at midnight. He saw the Detroit Free Press religious reporter ask Ellison insane questions about the gods of various insects. He saw 33% of the women Ellison dated in 1972 and 1973. He saw Ellison fleece six people in a game of twenty-one by betting all his chips at exactly the right moment. He heard Ellison impersonate Ronald Coleman as the Incredible Hulk at least a hundred times. He heard Ellison taking the credit for inventing the bit. The interviewer is a nervous wreck.

VERTEX: One of the current aims of science fiction is to break out of its literary ghetto. Although some individuals have met with success, the field itself is still regarded as cheap. What do you think is holding the field back?

"For many years I could not admit to myself that I was a loving individual."

ELLISON: We have an ingrained male chauvinism that comes out of writing in the pulp tradition. We also have tendencies to negativism and melodrama. If we wish to get serious attention from the academic community—and I think it's to our advantage to do so, as long as we keep it in perspective—then we must purge ourselves of the many correctly leveled accusations that we are cheap fiction. We must very carefully indicate to the literary world at large that sword and sorcery, "Star Trek," and comic books are not part of the field, but appendages which serve as breeding grounds for the readers and writers of sf. But the biggest hindrance is fans and their adolescent antics that fascinate cheapjack newspaper attention.

VERTEX: It seems to me that the amount of male chauvinism in the field has decreased, not only in the writing, but in the criticism. I mean, the work of a female writer is no longer described as being exactly like that of a man.

ELLISON: That's because our women are writing many of the things male sf writers thought could never be written; they are opening up whole new areas to us; they are making us examine tenets and shibboleths we thought were immutable. The mightily thewed warrior trip is one of those. People like Ursula LeGuin, Joanna Russ, Kate Wilhelm, and Doris Piserchia are making that seem hideously ridiculous.

VERTEX: All the characters in sf stories are gradually being treated more realistically. This too seems like a change from what has gone on before.

ELLISON: In sf it has always been possible for a certain type of mind—the computer programmer mentality—to use people as puppets to talk around the problem in the story. I think that in the next ten years we will see the emergence of writers who care more deeply about the people than they do the problem.

"When we become adults, we want fiction that touches our lives, that deals with the human condition."

If you look at all the sf which has gone before, you can find maybe half a dozen characters who stand out: Heinlein's Great Lorenzo from *Double Star,* Gulliver Foyle from *The Stars, My Destination,* Kuttner's Gallegher, Jommy Cross from van Vogt's *Slan.* I think those characters are the great achievements of science fiction. Long after the problem stories which we thought were so groovy are gone, we will still remember Gallegher and Gully Foyle.

VERTEX: Then may I take it that you don't care for the complaint that there are no more galaxy spanning Kimball Kinnisons?

ELLISON: My feeling is that that kind of character is pulp fiction writing. For all the wonder, joy, and delight that we perceive as children—even as adult children—in Tarzan and Doc Savage, when we become adults, we want fiction that touches our lives, that deals with the human condition.

VERTEX: In the early sixties your work began to deal with the human condition in an unique way, whereas before it was uninspired, unoriginal hackwork. What do you think were the factors responsible for such a change?

ELLISON: The change in my work actually started in 1957. I had done an enormous amount of hackwork in the preceding two years; I was a writer trying to find his voice. When I was drafted in 1957 I simply didn't have the time for writing any old thing. I was in Ranger training in the U.S. Army, stationed at Fort Benning, Georgia. I was married and supporting a household. I only had free time to write stories that meant something to me. By 1958 I was writing about contemporary events for non-science fiction magazines like *Rogue.* By the time I had gotten back into full-time writing in 1961, I was pretty much into what I wanted to do; I was writing about the human condition. If you look at even the science fiction I wrote during that period -"All the Sounds of Fear," "The Sky is Burning," "Paingod," and "Bright Eyes"—you'll see they're all foreshadowings of the better stories to come.

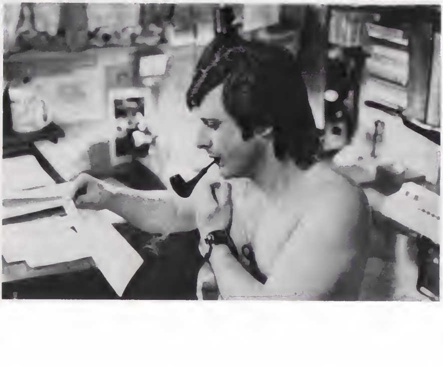
VERTEX: What writers have influenced your work the most?

ELLISON: Apart from those who influenced me deeply- Mark Twain, Conrad, Hemingway, Céline, John D. MacDonald, Clark Ashton Smith when I was younger—I haven't been affected by other writers all that much. Oddly enough, I am one of those people who have been influenced by painters and classical composers -Stravinsky, Scarlatti, Bach, Ives.

VERTEX: In what way?

ELLISON: Well, I've tried to figure out how I think of a story, and it's never, "Well, what if such and such and such and such?" Usually I get a story idea from a matter of tone. "Prowler in the City at the Edge of the World" was a visualization of the concept of burlap on stainless steel. Another image involved in that story is a shot from "The Mummy" where the archaeologist is looking at a

/turn to page 82



KIRK

THE MAGIC MACHINE

fiction / Scott Edelstein
artist / Tim Kirk

Katz had expected to find the sorcerer in a huge, rotten old house on the edge of town, or perhaps in a small, dingy room in a deserted building in the center of a city slum, or perhaps even in an abandoned barn with stained-glass hex signs over the doors.

Understandably, then, Katz was disturbed when he found himself standing before a gray metal door on the twelfth floor of an ultra-modern office building. On the door was a small, gold-finished plaque, obviously made by a quality commercial engraver. It was neat and shiny and its message was:

Room 123
Dr. Wilmar Rinaldi
SPELLS AND INCANTATIONS
Charms, Exorcisms & Assorted
Witchcraft

Taking a deep breath, Katz twisted the gold-plated doorknob, pushed the door open, and strode into the room.

The sorcerer's abode looked just like any other modern office: a water cooler stood next to the door, half a dozen chairs and four filing cabinets lined the walls. At the back of the office was a door which probably opened into another office. And in the center of the room, behind a large mahogany desk, sat a tall executive who wore a dark brown business suit and a white shirt.

All very unbecoming for a magician.

"Good afternoon," the man said, smiling warmly. "I'm Dr. Rinaldi. Sit down and tell me how I can help you."

Katz closed the door behind him and sat down warily in the chair closest to the desk. "My name is Katz," he said slowly. "I was, uh, wondering if you

turn to page 83

1003
PA

With every new invention in the world of mass entertainment it becomes harder and harder to tell what is the entertainment, and what is the world.

TELEVERITE

fiction/Larry Eisenberg

artist/Alicia Austin

The ultimate advancement in mass entertainment is to take it out of the mass market, and make it as completely individual and self-centered as possible, for as many people as possible.

Bennett Fulsome, a rotund butterball of a man, read the Nielsen figures glumly. The number of viewers watching the television offerings of his network had plummeted month by month until it was now less than one half of what it had been two years earlier.

"My God," he said to himself, "is it possible the bastards are starting to read again?"

He tossed the report on his desk and turned to stare moodily out of the forty-fifth story window that looked directly into the forty-fifth story window of an adjoining building. There was still one bright spot in the picture. Despite the sharp loss of viewers, his network was still first among all other networks since the others, too, had been losing viewers in alarming numbers.

"It's a universal phenomenon," he said aloud, lifting the lid of his humidor and selecting one of the long slender panatellas that he loved to chew on. "What we need is something new to tantalize, titillate and tempt the public."

He nodded vigorously at the sound of his own words and scratched them down on a memo pad. Then he studied the lever switches on his intercom and pressed one down. The sultry voice of his secretary, Aime Toujours, sent a shudder through his abdomen and he urged her warmly to come into his office. After they had indulged in an intricate pre-mating pattern and she had smoothed out the wrinkles in her blouse and skirt, he became brisk and businesslike. She looked at him with total adoration.

"Do you know what I like about you, Mr. F.?" she asked.

His circular face brightened.

"What?"

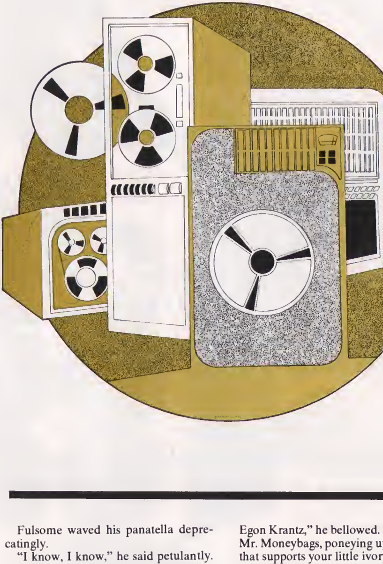
"In one moment you frolic with gay abandon and in the next, you're the strong, creative dominating tycoon."

He became thoughtful.

"All very true," he said. "But let's get down to brass tacks. Why the hell have we been shelling out two million a year for R&D? What have we got to show for it?"

"Our research group is one of the finest in the industry, Mr. F.," said Aime.

She thought of Egon Krantz, tall, slender, elegant, in short everything that Bennett Fulsome was not. She had spent many a weekend in his eyrie in the Green Mountains, rooms honeycombed with esoteric devices of his own devising. He had taught her, with computer programmed instruction sheets, methods of lovemaking that had staggered even her fertile imagination.



Fulsome waved his panatella deprecatingly.

"I know, I know," he said petulantly. "Gadgets by the hundred are being turned out. But nothing that will grab our viewers. Get hold of that bastard, Krantz, and tell him to park his keester in this office. And I mean right now."

"As you wish," said Aime.

When Egon Krantz came into the office, his upper lip curled along the graceful, disdainful line that George Sanders had perfected in years past, Fulsome was annoyed.

"Don't look down your nose at me, Egon Krantz," he bellowed. "To you I'm Mr. Moneybags, poneying up the scratch that supports your little ivory tower. But when the mother lode gives out, what'll you run your dream factory with?"

"Eager backers," said Krantz calmly.

"My research group has given you patents that bring in half our budget each year in royalties alone. We've had innumerable offers to come over, intact, to half a dozen other networks. Fire me and tomorrow we'll be working for your hottest competitor."

"Who's talking about firing?" asked Fulsome hastily. "Read the latest Nielsens and you'll see that we're dying on the vine. The viewers are retreating into the woodwork and we need something to lure them back. What have you got cooking on the burner?"

"The total answer to your problem," said Krantz confidently. "The main preoccupation of television is to gather new material, interesting, rousing, savage, tender material. TV has an insatiable appetite and it devours everything your finite number of writers can generate and still pants for more. Basically you have to accept the fact that your stable of writers has run out of ideas."

"Don't I know it?" cried Fulsome. "I've watched ten thousand reruns of Incest Place, that heartwarming series of what happens to one small closeknit family in the heartland of America."

"Have you heard of Cinéma Vérité?" asked Krantz.

Fulsome glared at him suspiciously.

"You mean where a camera in the closet films everything that happens, just as it happens?"

"Come off it, B.F.," said Krantz. "You make it sound like something unethical. We'll call it Televérité and shoot live scenes everywhere, in the kitchen, the bedroom, the toilet. We'll catch every expression, every sound, every nuance of sorrow, passion, laughter, and record it all on video tape."

"I get it," said Fulsome. "We can catch explicit sexual acts of every genre, breached births, actual death scenes with graphic closeups. But how would that differ from Incest Place?"

"In this way. We work only with a set number of basic scenes, each of five minute length. We use the same team of actors to insure viewer identification and involvement. Eighteen of these scenes would then be combined into a ninety minute television feature."

"How many of these basic scenes would have to be shot?" asked Fulsome.

"A hundred would more than suffice," said Krantz. "Some simple combinatorial mathematics proves my point. If you consider the possible combinations of one hundred things taken eighteen at a time, you get an approximate answer of ten followed by twenty one zeroes. Now throw into the pot a computer program which while generating the combinations, avoids the redundancies and non-sequiturs. That knocks off about five of those zeroes. And here is the clincher. If we take into account the number of times ninety minutes fits into a year, we discover that we could run our features continuously for over ten trillion years without repeating ourselves."

"Ten trillion years," said Fulsome pensively. "What a comforting feeling."

He stood up and stretched to his full five feet two inches of height.

"By God, Krantz," he said, with transcendent elation, "now you're really talking."

The following day, unannounced, he appeared at Krantz' lab, an immaculate white enameled room with marble benches and a plethora of retorts, bunsen burners, and nuclear magnetic resonant instrumentation. Krantz was staring at the label of a pressurized can.

"Put down the paint," said Fulsome, "and listen to me."

"It's not paint," said Krantz.

"Who cares? I want you to know that I've just budgeted five million for the next two years to carry out your new idea. Does that grab you?"

Krantz nodded.

"Cuts it close but I think we can swing it," he said. "And now, B.F., if you'll allow me to continue."

Fulsome was annoyed at the cavalier way in which Krantz accepted his earth-shaking news.

"All right," he said. "So I interrupted pure Science. You can go back to your paint can."

"I told you once before," said Krantz peevishly. "It's not paint. This is MURK."

"It's what?"

Krantz put down the can.

"I suppose I might as well tell you although I wanted to carry out further tests before making my disclosure. MURK is an acronym for a complex macromolecule that I've discovered based on some of the work of an obscure biochemist named Emmett Duckworth."

"Macromolecules?" cried Fulsome. "Is that where our money has been going?"

"Come next door," said Krantz. "Let me show you how it works before you run off at the mouth."

Fulsome withheld a crushing reply he had generated in a special portion of his cerebellum and moving his stubby legs at a rapid pace, followed after the even steps paced out by the long slender legs of Egon Krantz. He sniffed distastefully at the acrid smells of Lab Alpha where Krantz had taken him. But he consented, after much grumbling, to sit in a canvas-back folding chair and watch the demonstration that was to be given.

At one corner of the lab was a set of lighting fixtures arranged in a complex bank. One spotlight was turned on and a blue cone of light appeared in front of Fulsome's prominent nose. Then another light appeared in front of Fulsome's prominent nose. Then another light appeared, a red cone inside of the blue cone and of about half the volume.

"So where's the ice cream for these cones?" asked Fulsome acidly.

Krantz looked at him in stony silence, then turned and walked over to a cupboard where he brought out five more cans, similar in appearance to the one he had been holding earlier.

"Don't jump to premature conclusions," said Krantz. "These cans contain various varieties of MURK, each one a miasma of light spectrum sensitive molecules. On release, they are selectively attracted toward particular colors where they agglutinate. And if the colors are not primary, they'll even bunch selectively about intermediate colors."

"What the hell does all that mean?" cried Fulsome.

"Watch," said Krantz.

He sprayed the cones of light from one of the cans and then with another. A fine translucent mist appeared which quickly drifted into the beam and disappeared.

"Great," said Fulsome. "A disappearing mist. Just what we needed."

"Feel it," said Krantz.

"Feel what?" asked Fulsome, eyeing Krantz warily.

"The cones of light," said Krantz acidly.

Relieved, Fulsome leaned over and gingerly poked a finger at the blue cone.

"My God," he cried. "I *can* feel it. It's like velvet."

Krantz smiled bleakly.

"Now feel the red cone that's inside it."

"It has the texture of a fine Irish tweed," said Fulsome, drawing on his early work memories in the clothing industry.

"Precisely," said Krantz. "And there you see what MURK can do."

"How long did it take you to develop this stuff?"

"It took two men working full time with me over two years to perfect it," said Krantz.

"Great," said Fulsome. "So now we can *feel* colors. That's remarkable stuff you got there. Maybe an actor who wants to be hit with a spotlight would enjoy it."

"Do I detect a note of sarcasm in your normally genial voice?" asked Krantz. "I gather that you're not impressed with MURK."

"If you could show me how it would

turn to page 57

THE SPACE THEATRE

LET'S TAKE A TRIP TO 2348 AND A VOYAGE ON THE SPACESHIP DELTA V, OUTWARD BOUND FROM SAN DIEGO TO MARS, JUPITER AND THE OUTER PLANETS.

Applying the words *unique* and *unprecedented* to an entertainment development is a commonplace way of advertising a product just above mediocrity. When the words are applicable, they don't ring true—new words have to be conjured. Listen:

Space Transit Simulator—STS.

It sounds like NASA, and suspicion grows again. Isn't that a little too authentic, possibly pretentious? But to call it the world's most advanced planetarium is also begging the issue. San Diego's *Reuben H. Fleet Space Theater* is too much for adjectives to cover. A detailed description is necessary.

For the past six years San Diegans interested in astronomy and aerospace have been working on designs and dreams, inquiring around the world to see if equipment exists to give those dreams solidity. Their goal has been the construction of a planetarium of sorts, but the largest and the most innovative of its kind. Zeiss in Germany, manufacturers of the world's first production planetarium, refused a contract because they were satisfied with their existing planetarium design, tested by time. Spitz Laboratories of Chadds Ford, Pennsylvania took on the challenge. With the help of consultants like Jim Crooks, an employee of General Dynamics (which was founded by Major Reuben Fleet), and with the basic guideline of "innovate!" the planetarium system took shape on paper. Crooks pioneered the concept of a relativistic point of view in planetariums, specifying that the equipment should be able to show the stars and planets from any number of points in space, not limited to the Earth. To accomplish this, the star projector would have to be mounted on three axes of rotation—the astronaut's roll, pitch and yaw. Then the planetarium could simulate all motions in space, including the motion of the Earth. It would be as maneuverable as a space ship. To further eliminate an Earth-bound aspect, the usual horizon line would be eliminated. The dome would be unique. Instead of thinking in terms of the Earth's sky, with audience members looking up and straining their necks, the theater and the dome would be tilted. The audience would look straight ahead (as well as overhead) at a dome-screen combination canted at 23°. Immediately on entering the theater they would lose Earth's horizon, not to mention their balance.

Further changes were inaugurated in Chadds Ford. The star projector, as designed, would have both Northern and Southern hemispheres on one ball, making it less conspicuous in the center of the theater. And it would have ten thousand pin-point stars, three times more than are visible from beneath the Earth's sea of air. The Space Theater (as "planetarium" now seemed inapplicable) would be a ship journeying through space, unhindered by atmosphere.

Supplementing all this would be banks of slide projectors, special image projectors, planet and sun projectors for *orreries* (solar system schematics) and motion picture projectors for dramatic impact. But what could the motion picture industry offer which could fill the need for innovation? The newest and most experimental system was being pioneered by Multiscreen Corporation and

article/GREG BEAR

From the frozen rocky surface of Pluto the sun is a shrunken ball, lighting the landscape but warming it not at all. The final stop on a three year voyage of exploration that the Space Theater compresses into an all-too-short half-hour.

Showsphere in Hollywood. It was called IMAX (for Image- or "Eye-" Maximum). This seemed tailor-made for a theater-in-a-dome, since it was designed to fill a radically curved screen with a 70mm image adjusted by a "fish-eye" lens. Showsphere and the San Diego designers came together to see what could be arranged.

The IMAX in itself would not be sufficient, since its screen was not a hemisphere but an upright curved surface. A new design was formulated, and to signify the advancement a new name for the system was coined: OMNIMAX.

The OMNIMAX projector would be mounted just behind the starball at the geometric center of the dome. It would use 70mm film, and as with IMAX the film would be run through the projector sideways. This would allow each frame to be three times the size of a single Panavision© (or new Cinerama) frame. A special twelve-element projection lens was designed by computer, and cost $18,000 to construct.

To control all this sophisticated equipment would be more than any single human operator could be expected to do. A computer would be the only solution. It would have to be programmed with all the information any standard planetarium computer could be expected to have, orbital equations and standard ephemeris data, and more besides. It would have to be able to control all the equipment at once, and carry out some of its functions to five degrees of complexity. That is, in the orreries, it could take Venus (for example) and orbit it around the Earth, then take the Earth and Venus and orbit it around Mars, circle that system around Jupiter, and *that* around Saturn. The final step would be to take this boggling complex and orbit it around Neptune—at which point anything could be expected to give up. Consider that each projector has its own motor, and the controls involve several operations for each move—it would take a human operator hours to just figure the mathematics!

In 1972 construction of the building was started. Under the auspices of the San Diego Hall of Science, and with the assistance of Preston Fleet, son of Major Fleet, the equipment was contracted for and special filming was begun. Graphic Films of Hollywood began production

It is from this building, San Diego's Reuben H. Fleet Space Theater, that your voyage begins and ends, covering millions of miles without ever leaving the ground.

of the first space feature.

The equipment was installed in January of 1973. With very little time for testing—and with filming as yet unfinished—the planetarium staff and consultants worked and worried around the clock. The deadline was March 10th, and no planetarium had ever been successfully opened in so little time, much less one with potential problems as complex as those of the Space Theater.

The opening and dedication ceremonies were planned.

Two years of computer software designing and programming were completed, and the PDP-15-10 computer from Digital Corporation was installed. The STS console was hooked into the system and tested. Luxurious seats were positioned and carpet was laid over *everything:* OMNIMAX housing, handrails, and walls. The geodesic dome was covered with its interior layer of finely perforated and vinyl-covered aluminum sheets.

March 10 arrived. City celebrities and Hall of Science members gathered in the Spanish-style building to see the results of years of labor.

The theater audience was seated. Lights dimmed, machinery hummed softly . . .

And the sky was alive with stars.

The year is 2348, a disembodied narrator tells us. The outer planets of our solar system have aligned themselves in such a way that our spacecraft, the 600-foot Delta V, can move from world to world much as a man might cross a river from stone to stone. We can swing around Mars and Jupiter and gain a gravitational assist which will cut our travel time down to three years, instead of thirty of forty.

We are to be lifted by shuttle to join the Delta V in orbit around the Earth. The shuttle pilot addresses shuttle control: "I'm commencing burn—" And we are deafened by the blast of rockets firing. Stars wheel around us, and almost at our feet Earth appears with the moon rising over it. Clouds, oceans and continents drift beneath us in the moonlight, dreaming. "Twelve minutes to daylight." We catch our first sight of Delta V, a distant sliver in space.

And then it is upon us. Filling the entire screen from the bottom almost to the back edge of the dome, the ion-drive spacecraft looms, docking with the shuttle. It passes from night into day with sunrise over a red crescent Earth, then starts its nuclear engines and pushes us slowly out of orbit. In eighteen revolutions, slowly gaining speed, we are free of the Earth. Our first step on a voyage to the outer planets has begun.

There are few words to describe the total sensation. OMNIMAX is overpowering—the Earth fills the screen with its continents and seas, and the clouds seem three dimensional in their fluffy whorls. Mars is an enormous cratered mass looking (authentically enough) like a moldy orange. Jupiter, seen from its moon Io, is a stunning work of natural abstraction. The rings of Saturn—leagues and leagues of ice-covered rocks in a faerie drift around their gas-giant mother—make all of our journey seem a bungling pretense at achievement.

Uranus; Neptune; dim Pluto . . .

And a return to Earth. Three years compressed in a half-hour. Still uncertain how to react, the audience faces the second feature. It's a helicopter tour of Kauai in the Hawaiian Islands, shown purely by the Omnimax. Cinerama could never hope to equal the sensation provided by a wrap-around screen plunging the viewer into an extinct volcano.

A tour of the Space Theater usually starts in the theater itself. The dome is 76 feet wide and still retains a faint outline of its geodesic frame. It is perforated by millions of tiny holes (leaving it 22% open) to allow sound to pass through from the rear, where the speaker banks are located. There are sixteen such banks, each containing five speakers, custom designed by J.B. Lansing. Arranged to surround the theater in sound, they can be run off any sound source from a microphone to a six-channel 35mm tape machine. The amplifiers are Crowns, two banks each as tall as a man, and they provide five thousand watts of peak power. To get a minimum of distortion, a maximum of power must be used, and a surplus results. The sound system can produce 120 decibels, or about twice the volume of a jet aircraft taking off. But as one engineer expressed it, "That would set the seats on fire and make the people mad." Full volume is never used.

The starball is impressive by itself. Four feet across, it sits in its bowl as stolid as some ancient god. The knobs and lenses on its surface make it look like an over-urbanized planet. Its star images are extremely small, one-fourth to a half-inch at thirty-six feet, and the field is as close to a night sky (with more stars, however) as current technology can make it.

The console from which the equipment is controlled is divided into two main sections. There is a CRT (or Cathode Ray Tube) display and an attached keyboard for talking to the computer. Next to this is a "joy-stick" which can be hooked into any portion of the equipment—or all of it in combination—through the computer to give manual control. Adjacent to this section is an MCS (or Manual Control System) panel. The feather-touch buttons here also control the equipment, but only in turning it on and off, adjusting zoom

turn to page 76

TIME SCOOP

from page 20

star-patterns in this sky are not the same as our own, familiar ones."

Alan cried: "Good-o for you, Don Luis! . . . About the constellations: is there much difference?"

Rodriguez replied: "I could find none of our normal ones. And I am familiar with both Northern and Southern Hemispheres."

The Spaniards had been two weeks on this planet. They had encountered the Vikings only three days previously, on entering the bay.

Tony ventured: "Don Luis, we're all in this together. Far from our homes and anything familiar. Won't you restrain your natural reactions towards fighting men other than yourselves, and make common cause with our Norse friends?"

The grandee's swarthy features stiffened. Glancing at Thorkildson, he finally acquiesced with a smile.

"You are right, Tony. We were too distrustful. I know from my studies of history, what formidable fighting men the Vikings were."

Alan said: "Don Luis—meet Leif Thorkildson and his band."

The giant took the Spaniard's hand in his immense paw.

"I am not a man for holding grudges, Don Luis. You were honest enough to admit your mistake. Let bygones be bygones."

Rodriguez nodded gravely. "It is well, Leif Thorkildson."

The Spanish seamen mixed with their Viking counterparts, exchanging experiences.

Don Luis' attention returned to Tony.

"In my own way, Tony Zambrowski, I am something of a scholar. I have read of da Vinci's plans for a flying machine. Will you tell me about your own vehicles?"

As Tony attempted to explain the combustion engine, the grandee's eyes flashed with understanding.

"I see! The gasoline, fed into the engine, ignites to turn the propeller which, in turn, drives the air back over the wings. It is abundantly clear. And what do you call this machine?"

Alan replied: "A Sopwith Camel. One of the most successful aircraft of the First World War."

The Spaniard looked horrified.

"*First World War?* Do you mean to say that wars have engulfed the entire planet in this terrible future of yours?"

Mackenzie nodded sadly. "Almost, Don Luis. The First World War involved most of Europe, the Middle East and Russia."

Tony added grimly: "And the Second, a generation later, *did* cover the planet. Some nations retained their neutrality, but only a handful."

The U.N. Major sketched in the outlines of that conflict before he returned to flying.

"My own machine is more complex. It's powered by a vestpocket atomic reactor using the element hydrogen for fuel."

At Rodriguez' bewildered expression, he digressed into basic atomic theory, how the Bomb had been developed, and had ended the Second World War in the East. He went on to describe the Third World War of 1993. How—after the nuclear devastation—all surviving nations had outlawed atomic weapons, and the subsequent utilization of miniature atomic reactors for propulsion purposes. Alan Mackenzie listened to this part of the story with fully as much absorption as the Spaniard.

—III—

Next day, the two pilots returned to their jungle landing field. Tony had spotted a chain of islands two hundred and thirty miles off the mainland on one of his high sorties. He wanted extra fuel for both Alan and himself.

By early afternoon, they were back at the coast. Mackenzie swooped low over the beach. A party of Rodriguez' men were with the Norsemen; they all waved as the Sopwith came in, landing near Tony. Refueling commenced immediately.

Don Luis approached.

"May one enquire where you are going, senors?"

The Canadian smiled. He was getting to like this courtly Spaniard.

"Tony found a chain of islands some distance out in the ocean. We're going to investigate."

Rodriguez looked interested.

"Could I perhaps accompany you?"

Alan was regretful. "Sorry, Don Luis. My machine is only a single-seater. But ask Tony; his plane is larger."

The grandee turned to the American.

Zambrowski grinned. "Get into the cabin, Don Luis. I'll be with you as soon as I swing Alan's prop."

Tony helped Mackenzie get his crochety Le Rhone warmed up. Then he joined Rodriguez and took off.

Alan cruised at 1,500 feet for slightly under two and a quarter hours. He was eying his fuel gauge anxiously when the first island appeared on the horizon. The Canadian put down on the nearest beach. Don Luis and Tony were waiting for him.

The Spaniard was exultant.

"We've found more of them!" he cried as soon as Alan's engine died. The RFC pilot vaulted from his cockpit, wheeled towards Zombrowski.

"Which eras?"

Tony grinned lopsidedly as he worked the refueling hose.

"You'll see," was all he would say. "Follow me straight inland and hurry!"

A few minutes later, they were airborne. The Sopwith flew over rolling hills interspersed with grassy plains. Eighteen miles from the coast, Alan discovered Tony circling overhead.

He looked downwards, drew in his breath sharply.

A battle was in progress. And *what* a battle!

As he brought the Camel down to 100 feet, he spotted a Roman cohort moving up a hillside, men crumpling on all sides as it went. For a moment, Mackenzie couldn't make out what was cutting them down so mercilessly. Then he saw a swarm of arrows descending from the hilltop.

His plane zoomed low over the hilltop for a closer look. White, upturned faces gaped at him, their chainmetaled owners gripping longbows. But a few were more quick-witted: they drew and loosed at the aircraft.

The archers fired directly at the Camel. When the arrows came hissing through the air, Mackenzie's machine was no longer there. Climbing back to 300 feet, he banked and returned.

The distraction of the plane had given the Romans a much-needed respite. None of that iron-disciplined force had so much as glanced up; they concentrated on closing the gap separating them from the archers. But the latter were pros: after a few seconds' hiatus, they resumed their task of killing the advancing Romans.

The Canadian pilot was a shrewd judge of distance. He estimated that, when he first spied the cohort, the archers had been firing on them from well over 300 yards. And Roman dead and wounded left a trail all up that hillside. There was only one type of archer Alan knew to be capable of markmanship such as that—English longbowmen of the 14th. and 15th. centuries.

Going in for another look, Alan banked low and to one side of the cohort. He gasped at the accuracy of that fusillade. Not five shafts in twenty were missing! By the time the Romans reached that hilltop, they numbered less than 200.

But the remainder of the cohort were angry men. They fell upon the archers and pikemen defending them like furies. It was pike and chainmail against broadsword and shield. Corpses and the wounded soon lay thick upon the hilltop. The archers began fleeing as a group of pikemen prepared to make a last stand.

Then the battle stopped.

Thrusting swords suddenly ceased thrusting, pikemen lowered their weapons. Roman and Englishman alike looked dazedly at each other, as though waking from a dream.

Mackenzie had been skimming over the hilltop. Sensing the time was ripe, he landed on a level stretch of ground beyond. Tony's Vulture screamed down to join him. The two started to unholster their service pistols as they climbed the hill.

But they weren't necessary. For looks of horrified surprise were frozen on the faces in front of them.

Men who had been corpses moments before were staggering to their feet, wounds disappearing even as they watched.

A rugged-looking centurion turned glassy eyes upon the three strange figures.

"Who are you?" he gasped. "What sorceries do you cast upon simple soldiers, you winged warlocks?"

Rodriguez stared at Mackenzie and Zambrowski.

"He thinks we are responsible for the battle," the grandee hissed.

The Roman retreated a step at the shock of being able to understand this alien's tongue.

"You mean that you are *not?*"

Alan shook his head. " 'Fraid not. We don't know any more about it than you do."

The centurion thrust broadsword into scabbard, dropped his shield. His aquiline features mirrored bewilderment as Tony stepped forward.

"My name is Tony Zambrowski. I'm from an age far in your future. I fight in that flying machine back there." He gestured at the Vulture.

The Roman considered Tony for a moment, finally nodding.

"You seem to speak honestly, though your tongue is strange. My own name is Septus Marcus Antonius, centurion of this cohort . . . You say you are from a future age? Is Rome remembered where you come from?

Tony smiled. "It would take longer than two thousand years for the Roman Empire to be forgotten, Septus Marcus," he said gently.

The tough centurion looked dazed.

"Two thousand years?" he whispered. "And still remembered." He shook himself. "Thank you, Tony Zambrowski . . . Now, tell me how you arrived in this outlandish place."

Tony filled him in as simply as possible. As he finished, the Roman was thoughtful.

"Hmmm. 'Twas the same with us. One moment we were marching down a road in Gaul; the next, with an agonizing wrench, we found ourselves on this plain, under an alien sun. We have been here a little more than one moon."

While they had been talking, a tall ruddy-faced archer had approached. Now he cleared his throat.

"My lords, I have been listening to you, and though 'tis passing strange how I can understand your various tongues, it sheds light on some matters I was wondering about. My name is Tom Yarrow."

The Englishman held out his hand. One by one, the others shook it, the last being the centurion who gripped his wrist in the old Roman fashion. The archer peered into his eyes.

"To you, Septus Marcus Antonius, I can only say I am sorry for this assault upon your men. None of us understand why we attacked you. The impulse overwhelmed us."

The Roman's eyes gleamed. "By Jupiter, 'twas the same with us." He stared hard at Tony. "What makest you of that?"

The American shook his head. "We don't know, Septus. This is the first time anything like this has happened."

Alan strode on up the hill. "I'm for a closer look at these 'casualties.' "

They followed. Not all of the miraculously-recovered men's wounds had healed, so they were able to observe at close quarters. A pikeman whose right eye had been pierced by a Roman sword was in the process of being helped to his feet. The bloody pulp of brain and eye vanished as they watched. A new eye suddenly appeared in the socket, aureoled in an eerie blue radiance. At first it was misty and insubstantial. Then, the blue light fading, it became a normal eyeball.

Through all this, the pikeman had been like one half-asleep. Now, shaking his head, he was wide awake. He started, looked around with surprise.

"Zounds!" he cried, "I could have sworn that enemy dealt me a mortal blow. I must have been dreaming!"

The English archers recovered their arrows intact. Even those which had scored "kills" were in good condition.

The Romans and English mingled without rancor, marveling at the miraculous recovery of their 'dead' comrades.

More and more men, warriors all, were appearing on the planet, but still they had no idea of why they were there.

By the time the fliers and Don Luis departed, they were fast friends and determined to stay together.

Alan and Tony continued reconnoitering the islands. Refueling the Sopwith, they flew across the first—a distance of 80 miles—then crossed 25 miles of ocean to the next. This was larger and Alan's Camel had to be refueled twice before they'd established that there were no more time-groups to be found. As reserve fuel for the Sopwith was getting low, they cut short their exploration and returned to the mainland.

"You know, Alan," said Tony at their jungle field, "we'd be a lot better off if we could extend the range of your machine."

Mackenzie nodded dourly. He'd been uncomfortably aware that he was slowing things up.

Tony entered the Remdrell hangar and spent ten minutes routing through his spares. He emerged grinning.

"I *thought* so!" he exclaimed. "I've enough tools and parts to outfit your ship with extra fuel tanks. Bring her over here."

Alan climbed into the cockpit. With Tony's help, he started his engine. Don Luis watched with close attention. The ancient Le Rhone spat and hawked like an old man wearily facing up to another day. Then the Canadian taxied slowly to the hangar's doorway and switched off.

For the next two hours they worked together, peeling back the fuselage covering and installing new tanks behind the cockpit. Zambrowski was forced to do a rough and ready job of welding. But when they tested it later, the Camel's range had been extended to five hours of powered flight.

Tony also added a tiny radio transmitter to the dashboard and fitted a miniaturized receiver in the Canadian's flying helmet. Now they would be able to keep in contact while airborne.

Don Luis followed these operations with avid interest. Unable to help, save in the most unskilled matters, he was nevertheless fascinated with the mechanical details.

—IV—

They decided it was time for another council of war. Rodriguez insisted on being allowed to swing the propeller—he'd watched Zambrowski and turned in a good performance—then joined the American in the Lockheed.

At the coast, the Spaniards and Norsemen were delighted at their return. But they shook their heads when asked if they had fought among themselves while the others were away.

Don Luis invited them all to the galleon for supper.

That evening, after a superb Spanish meal, including the finest of wines, Alan Mackenzie sat back in a glow of sheer creature comfort. The furnishings of the galleon's wardroom were lavish: he'd eaten from heavy gold plate; the goblet which held his wine was obviously the work of a master craftsman. For the first time in many months, the Canadian was completely relaxed. The awful tension of flying four and five patrols a day—which he'd been doing all during 1917's Bloody April—had drained from him. He felt wonderful.

Alan's mind returned to Great Bear Lake in the Northwest Territories. He'd built his cabin on its banks in 1910, though he usually ranged far to the north and west on his winter trapline. Summers, he prospected; his geologist father had taught Alan how to look for precious metals. The freedom and danger of that vast, northern land had always appealed to him in a way that none of the soft southern cities could match. It had a harsh magnificence that kept a man on his mettle.

When he'd heard about the Great War from a trapper, there was only one service which could interest a man such as Alan Mackenzie—the newly formed Royal Flying Corps. He'd enlisted in Toronto early in '15, completed his training and been sent overseas by the summer. He fought his aerial war from June of '15 to April of '17 in Martinsydes, Nieuports and Camels.

"Hey, Alan, cut the woolgathering!"

Zambrowski's harsh 21st. Century American jarred him from his recollections. The Canadian opened his eyes—he realized he'd been half-asleep—and peered at the others with embarrassment. Rodriguez and Thorkildson were smiling, but Zambrowski was irritated.

"Sorry. The wine relaxed me; I was thinking of home."

Tony's irritation vanished. He said, apologetically,

"I didn't mean to jump you like that, Alan. Anybody's entitled to think of home." He looked sad. "That's probably as close as we'll ever get to it again. But I feel the time is ripe to try to figure out this screwy situation, don't you?"

Mackenzie sat up.

"You're right," he said. "I've had some thoughts on that subject."

He glanced at the others, received nods to go ahead. The pilot put his right elbow on the table, held up his hand. As he talked, he ticked off points on his fingers.

"First, in each of the six cases we know about, individuals or groups of fighting men have been plucked from their own ages to this planet. Myself from the early 20th. Century, Tony from the mid-21st., Don Luis and his men from the 16th., Tom Yarrow's archers and pikemen from the 14th. Leif Thorkildson's Vikings from anywhere between the 8th. to 10th. Centuries, and Septus Marcus Antonius' cohort from the Roman Empire, possibly about the time of Caesar's invasion of Britain.

"Second, we've come through with our weapons and equipment intact. In Tony's case, and mine, that even extended to a prepared landing field in the jungle where hangars were ready for our machines, together with supplies of fuel and spares to keep them flying."

Mackenzie paused, watching the others for a protracted moment.

"Now comes a strange omission: neither Tony nor I found any ammunition for my guns or missiles for his rocket launchers."

Murmurs of surprise from Don Luis and Leif Thorkildson. The Spaniard's fist hit the table with a force that made the platters and wine goblets dance wildly.

"*Mother of God.* 'Twas the same with *our* guns when we checked the gunpowder, after coming over that accurst threshold, none of it was serviceable."

Tony leaned forward.

"Simple hand weapons we're allowed. But nothing of more destructive potential!"

Alan nodded. "*That's it.*"

The Canadian paced as he talked.

"Third—and strangest of all—the battle between Antonius' cohort and Yarrow's longbowmen. Suddenly both groups are overcome by the lust to kill. The sequel we all know: after the slaughter, all casualties, dead and wounded alike, recover, their wounds healing as by magic and discharged arrows are recovered intact."

Mackenzie stopped pacing.

"Fourth, the peculiar matter of being able to understand each other's languages, as though they were being translated. What do you make of it all?"

The giant Norseman swore: "By Odin's eye, if the rest of you did not agree on that part about the dead and wounded recovering, I would say that you had all quoffed too much mead."

His ice-blue eyes became forlorn. "That is one of the things I miss most in this damned place: good, strong mead!"

Don Luis' eyes were shining as he said:

"Something or someone has brought us here with our weapons so that we may do battle among ourselves for an unfathomable purpose, or purposes."

Tony interjected: "But after the battle, the casualties recover and the weapons remain intact." He laughed sardonically. "Mustn't waste the actors or their tools, eh? Might want a return engagement."

A stunned silence ensued.

Then Leif swore: *"Damn them*—whoever, or whatever, they are!"

Alan said softly: "I agree wholeheartedly, Leif, but Don Luis and Tony sum up the situation as I see it."

They had no further discussion that night. More ruby wine was served and they proceeded to try and forget their plight.

Next day, Thorkildson's Vikings brought back a couple of deer-like animals from a hunting trip. When cooked, the meat had a deliciously tangy flavor. From then on, parties of hunters ranged further afield in quest of game and other time-groups.

Alan was game-spotting one day for a party of Vikings near a range of coastal mountains. Something made him glance around and up. He stiffened.

High above, an indefinable shape was moving an eye-blurring speed towards him. He put the Camel into a sharp turn, climbing for all it was worth. One hand gripped the stick like a vise; the other went to the instrument panel where Tony had installed his radio transmitter, pressed the call button. Mackenzie raised the tiny mike to his mouth.

"Alan calling Tony! *Condition red.* Come in, Tony!"

The Canadian heard the other's voice faintly in his earphones. "Tony confirming condition red. What's up?"

Even in those seconds, the object hurtling towards him had become larger. It was streamlined—a tapering, ovoid shape, lacking wings or tailplane. He could see no exhaust or other indication of what propelled it.

"Unidentified flying object approaching at great acceleration. No wings, tail, or visible exhaust. Came from damned high up in seconds. It's hovering above me, maintaining a parallel course."

Tony's voice was stronger now. "I've got you on radar. Keep cool, fella. Be there in minutes."

Alan could see a man staring at him from a transparent section in the ovoid's nose. But the strange vessel made no hostile move. Gradually, Alan's fear dissipated and his mind began to work again. This machine indicated a level of technology far beyond even Tony's 21st. Century.

He peered down, searching for a place to land. Some distance ahead was a level valley.

Mackenzie faced the man in the other vessel, gestured downwards. Pointed to himself, then to the other. The ovoid pilot nodded understanding. Alan experienced a vast sense of relief. As he banked, lining up the Sopwith with the valley below, Tony's voice crackled in the earphones.

"Gottcha. I see you both, now."

The Canadian informed the U.N. pilot he was landing, that the other was following him in. Then Alan had his hands full: updrafts off the mountain made the little scout buck like a wild thing. At last, he came in to a rough landing, switched off.

While he had fought the thermals, the ovoid craft had hovered above. Now it dropped straight downwards. Near the ground, its velocity diminished sharply. Then it alighted, softly as a feather, twenty yards from the Camel.

Tony brought his Vulture in to a landing. The Lockheed halted just beyond the ovoid; Tony descended. As he did so, a hatch opened in the strange craft's side and a man emerged. He was dressed in a form-fitting purple coverall.

Mackenzie doffed his flying helmet, jumped to the ground as the purple-garbed pilot came forward. He was short and extremely stocky, but moved quickly. His features were a curious blending of Caucasian and Mongolian, skin a light lemon color. Dark brown eyes considered Alan and his machine with great interest for several moments, then he turned to Tony and the Vulture. The Canadian noted the epicanthic fold of his eyelids, the flat splayed nose.

The short man's voice was a velvety sibilance.

"Most interesting: one of the earliest forms of powered aircraft. Primitive combustion engine? And the other—an early atomic-powered rocket." Staring intently at Tony, he said: "Your features appear to be ancient Caucasian, probably from the Noramerican Sector of the First Technological Civilization. Anytime from the 21st. to the 23rd. Century."

His gaze returned to Alan. The RFC pilot felt as though he were a specimen on a slide.

"You, on the other hand, are from the Pre-Atomic Period. Caucasian strain more sharply defined. I'd guess another Noramerican."

Alan grinned, held out his hand.

"Dead on. Capt. Alan Mackenzie of the Royal Flying Corps. A Canadian."

The stocky man had a strong grip.

"Chen Kostov Darzelian, Colonel of Space Interceptors. Second Terrestrial Empire. A Eurasiatic."

Tony chuckled. "You're well up on your history, Chen! I'm Tony Zambrowski, a Major in the United Nations Air Force, from the Frisco-Angeles Compex of Noramerica. Mid-21st. Century. What year, by the way, do *you* hail from?"

The purple-garbed man looked puzzled. "Hail from?" Then he brightened. "Oh, I see! . . . I'm from 3779."

Alan interjected: "Were you in combat before you came across the threshold?"

Darzelian smiled grimly. "More like a rout. We were attempting to hold off a strike force from Altair IV. One of our reconnaissance missions discovered the Varsegs two years ago. A reptilian life-form, with an abiding hatred of any other race, and a technological edge on us. We had been trying to hold them at the Asteroids when I went over this threshold you mention." He shuddered. "An agonizing experience! . . . I gather we're being scooped from different time-periods and deposited on this planet. Have you found out why?"

Alan filled in the background: the groups they'd discovered, what had occurred after the battle between the Romans and English, and the conclusions they'd drawn.

The Eurasiatic smiled. "As logical an explanation as I can think of. Am I from the most advanced period?"

Tony nodded. "Which reminds me—what drives your ship, Chen?"

The space pilot replied: "It would have been called an antigravity mechanism in your day, I imagine. Without going mathematical, a lot of surprises have come along concerning the related nature of gravity, magnetism and atomic fusion. My propulsion system embodies this knowledge, picking up appropriate lines of force in space or hyperspace. The power tapped is universal and virtually without limit."

Alan whistled softly. *"Perpetual motion."*

The lemon-skinned Colonel looked amused. "I suppose you could call it that. My drive needs servicing occasionally,

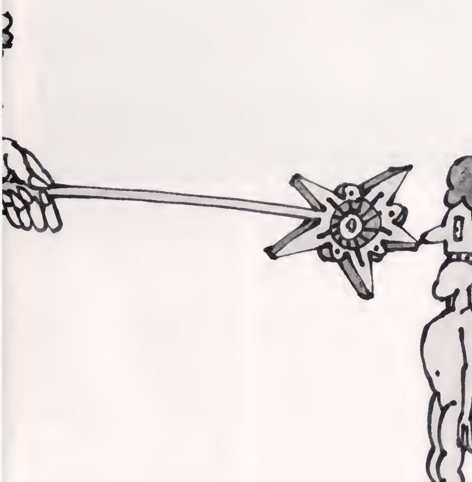
turn to page 64

FRANK PAGE

THERE'S ENERGY EVERYWHERE

by IGOR BOHASSIAN

As the energy crisis gets worse and worse, we're going to have to look further and further afield to find new sources of power.



The United States has found itself, without apparent warning, in the middle of an energy crisis of almost epic proportions. The lack of warning was only apparent, though. Or non-apparent, for people didn't bother to look at what was happening around them, to listen to what the experts were saying. The energy crunch has been predicted for years, has been growing for years, and it was only the political turmoil in the middle east which caused it to come rushing down on us, instead of creeping up like some form of cancer.

Cancer is perhaps a good word to use when dealing with the energy problems of our modern technological civilization, for man is living wastefully off the stored energy sources of the earth like some form of cancer devouring the very body which gives us life, rather than living in symbiosis with it. But it isn't too late to change, too late to stop raping the earth and start making love to it. For there are many possible sources of energy available to us: those which we have been ripping off, and those which we are just beginning to realize are there. Let's take a look at them, and see just where we might get our needed energy in the future, if we leave ourselves any future.

The most widely used source of energy in the United States today is petroleum and petroleum products, accounting for over one-third of the total energy used in the U.S. And, continuing the energy-use curve into the future, by the year 2000 experts believe that 90-percent of the oil in the world may be used up. Even the tremendous north slope fields recently discovered in Alaska, which the recently approved Alaska Pipeline will bring to the U.S., will only fuel the U.S. need for petroleum for three years.

But petroleum, and the movement of petroleum, presents many problems which can't wait until we run out of oil, permanent as that solution might be. A large part of the oil we need is going to have to come from the middle east, which means that a group of very small countries, in effect, have a gun at the head of the technological giants of the north. Movements of large amounts of oil around the world means supertankers, superharbors, and superinvestments, which no oil company is going to make in an area where politics might wipe out that investment the day after it is made.

On top of that, there is the pollution problem posed by petroleum use as a major energy source. Motor vehicles currently account for some 44-percent of today's atmospheric pollution. Plants burning oil to produce energy produce another 16-percent. Add to this the danger of oil spills during transportation, and the aftereffects pollution of non-energy oil use, such as in making plastics, and you can see that, even if oil supplies were not short, something would have to be done to curtail the use of this power source if we are going to survive on this planet.

There are three readily available forms of fossil fuels; oil, natural gas, and coal. Oil and natural gas, between them, account for two-thirds of the energy production in the U.S. This is really amazing when you consider that only three decades ago natural gas was burned at the well as an unwanted byproduct of the oil field. That gas, predominantly methane, once seemed to be the fuel of the future, but since 1968 proved reserves of natural gas in the U.S. have declined while production has outrun new discoveries. Those deposits of natural gas we know about in the U.S., at the current rate of use, are good for about eleven more years. There is a large amount of natural gas thought to be under the continental shelf, but at present no one has any idea of how to get to it on a commercially feasible basis.

One way currently being developed to extend the lifetime of our natural gas power-availability is to import natural gas from foreign sources, notably Siberia. But this is but a stopgap measure, requiring expensive tankers to handle the liquified gas. The one advantage to natural gas which makes such importation at least temporarily expedient is that natural gas is a relatively clean power source. It is virtually sulphur free, the only pollution being in situations where it is burned in power plants to produce electricity. There the high temperatures required produce high quantities of oxides of nitrogen.

The third form of fossil fuel used in the U.S. is coal, which today accounts for some twenty-percent of our energy use. And even at the predicted rates of energy-use increase, there are coal reserves for at least 500 years. But the use of coal presents even more problems, from a pollution standpoint, than does the use of oil. The burning of coal releases large amounts of sulfur dioxide, one of the most harmful pollutants from a health standpoint, as well as carbon dioxide, which some scientists see as forcing a climate change should we convert to massive energy production from coal.

Today some ten-percent of the energy used in the United States is produced by gravity machines. That's right — gravity machines. Getting power out of a gravitational field. In this case, by dropping water through it, the water gaining energy as it falls, the energy being used to turn a turbine, which turns a generator, which produces electricity. This form of power, hydroelectric plants and dams, is becoming less and less practical, though. Blocking up rivers to produce electricity floods land we cannot afford to lose, hydroelectric plants, on a dollar-for-dollar basis, are not as efficient as steam-generating plants, and because of rapid siltation dams in average praire lands have a life expectancy of only about fifty years.

Fission power, the atomic power which was supposed to be the wave of the future, is proving to be more and more of a dud, and an expensive and dangerous dud at that. At first it looked like nuclear power would be safe, clean, efficient, and end our power problems for all time. Unfortunately, not one of those suppositions have proved to be true. More and more scientists are questioning the safety of the plants, they produce some of the most deadly wastes possible, much worse than any bomb yet developed, on a dollar-for-dollar basis they cannot compete with steam plants, and it is obvious that they have not ended our power problems.

Of all the problems facing nuclear engineers, probably the most troublesome is waste disposal. These power plants make, as a by-product of their power production, great amounts of liquid waste, which are not only deadly to all forms of life, but which will continue to be deadly for centuries. And these wastes must be stored. Unfortunately, the containers to hold these wastes which will be deadly for centuries are good for only decades, and already there have been serious leaks from storage tanks. In addition, the nuclear plant produces a tremendous amount of waste heat, which must be dumped either into the atmosphere or into the water. At this stage atmospheric cooling of nuclear plants is impractical, so water cooling has become standard, and the dumping of all that hot water might well lead to environmental degradation in the area. Nuclear engineers say they have the situation under control, but many scientists are saying otherwise.

Of the forms of power currently untapped, solar and geothermal probably offer the easiest solutions to the energy crisis, in that they can most easily and most quickly be put "on line" to provide the increased power we are going to need over the next few decades.

Even taking the most pessimistic projections of our current energy usage forward to the year 2000, we find that less than one-percent of the solar energy falling on the Sahara Desert would be sufficient to supply all needs. And no technological breakthroughs are necessary. The only problems holding back widespread use of

Ultimately the only source practical to provide energy for technological society is atomic fusion.

solar power are economic.

Almost every one of our unmanned space probes has used solar power to carry out its mission. Russia is already experimenting with large energy-farms, utilizing solar power. Thousands of solar water heaters have been installed in homes in Florida, solar heat storage for homes has been in use for many years, and there are dozens of experimental houses around the country powered entirely by the sun, including heating and air conditioning. All solar energy needs to become a practical reality is money and engineering. The research has been done, and the feasibility proven.

Geothermal energy is another proven source which requires very little to put it on line. Taking power from hot rock areas a short distance below the surface in the form of steam, is already a reality. In Northern California a geothermal power plant is already producing 180 megawatts of power at less cost per watt than comparable oil and nuclear plants. Just thirteen-percent of the total heat available from geothermal sources around the world could produce ten times the world's present average energy output. The heat energy stored in the 500 square miles of California's Imperial Valley equals at least 27-percent of the heating capacity of the entire world's oil reserves.

There are, however, problems with geothermal power, not the least of which is pollution. The water brought up in the form of steam is often so highly mineralized it will kill any aquatic life in the area, should it be dumped into a nearby river or lake. And geothermal will often smell bad, as well as possibly releasing dangerous amounts of sulfur gasses, ammonia and boron. Of course, not the least danger would be that the injection and withdrawal of geothermal fluids, either water from the earth itself or a working fluid, might trigger seismic effects, quite a factor in earthquake prone California.

A little further down the line, but an energy-source that *must* be developed, is the conversion of organic waste and refuse into power. Every year the United States produces some one and one-half *billion* tons of organic waste, and almost all of it could be converted into methane gas, the same as natural gas. This would produce some 30 trillion cubic feet of gas through anaerobic digestion, or roughly 150-percent of the current amount of natural gas used in the country. And as production and population increase, organic waste will increase, and therefore the amount of gas available will increase. Just the opposite of the case with fossil deposits of natural gas or petroleum.

When all is said and done, though, there is one ultimate source of energy, and we are, right now, very close to getting it under control. That is the energy of nuclear fusion. A virtually inexhaustible source of power that is to all intents and purposes pollution free.

Fusion refers to the fusing together of two or more atoms. The most probable atoms would be those of deuterium, heavy hydrogen. When two or more atoms fuse to form another atom, it is very seldom that the weights work out exactly. In other words, it might take three atoms fusing to make one heavier atom, with a little bit left over. And that little bit appears as energy. Using deuterium as fuel, there is enough usable fuel in earth's oceans to provide all the power we could possibly use for several hundred-million years. The problem is that to get this power a plasma must be produced, an ionized gas at some 46 million degrees Kelvin and at some 10,000 atmospheres density. Not an easy task, but one that will eventually be solved. For it is, ultimately, upon controlled nuclear fusion that the power to run our technological society depends. O

POTPOURRI,

from page 14

MATTIE HARRIS GALACTIC SPY

by
Rachel Cosgrove Payes

"But Howie," Matilda Harris objected, "I'm just not the type." She smirked smugly. "Female spies are either dark and slinky, or plain Janes strictly from Dullsville. Now, do I fit either category?" She paraded her statuesque chorus girl charms in front of Howie Pringle, head of Galactic Central's Security Police. "I'm just a little old secretary, now out of employment."

She could see that Howie was viewing her with that natural, built-in leer that she inspired in all red blooded human males—and plenty of male aliens, too. Matilda wasn't stupid where men were concerned, even though she was queen of the dumb blonde dames. Of course her hair color was bottled in blonde, and her inch long eye lashes were phony; but there wasn't anything falsie about her profile numbers which read an incredible 42—22—36. And wasn't it lucky that she looked so good in black? Her employer and patron, Ambassador Richards, Earth Envoy to the Galactic Central, had died recently, putting Matilda in mourning. The newest style of black skinsies, complete with a floor length diaphanous black robe, was sheer (used advisedly) murder on Matilda.

"Matilda," Howie said when he'd recovered his voice, "That's what would make you a natural at spying. Who would ever dream that you'd conceal anything? And as the late Ambassador's secretary, you're familiar with many of the Galactic diplomats."

"You can say that again," she muttered.

Although Matilda's late employer, the Ambassador, had left her fabulously wealthy via his will, she wanted to know her salary, being just a poor little working girl at heart. When Howie mentioned a figure, she frowned. "As my late, wealthy employer, Ambassador Richards, always said, 'A penny a day isn't much for your thoughts.' "

"Matilda," Howie begged, "do it for the Galactic Federation."

When Howie put it that way, what could Matilda say?

"Okay, so call me Mattie Harris, galactic spy."

"With the emphasis on the *gal,*" he drooled.

Then, getting down to business, Howie explained her first assignment. "An immensely important extra-terrestrial diplomat and his consort are attending a Terran Embassy reception tonight. Their existences have been threatened. We have two suspects: a young, hot blooded folksinger from Betelgeuse IV, one of the canary-beings we call Birds: and an unsavory attache from an unfriendly planet in the Caroline Series, an arthropod called Ontha Lefnik."

"And my job?"

"To use your considerable charms to find out which of these creatures is the potential assassin."

"But how will I recognize them in all that mob of aliens? All right, so one is a Bird—but the place is flying with them. And show me any gathering where there aren't a bunch of Crabs."

"Have no fear, Matilda, you will not be working alone. My men will be giving you constant attention." Again he leered. "When you are introduced to the suspects, one of our agents will be on hand. He'll say something innocent sounding, using some common, unobtrusive word beginning with *X,* so that you'll be alerted."

The Embassy reception was nearly over when Matilda arrived that night. "As my late, wealthy employer, Ambassador Richards, always said, 'Better late and never wait,' " she chirped to her hostess, wife of the Terran Ambassador.

Immediately human and non-human males swarmed about Matilda, a sea of blurred faces, as she'd forgotten to wear her contact lenses, and her big-eyed baby stare was really only myopia.

One man murmured into her ear, "You're just what I want for Christmas."

Turning eagerly to him, Matilda said, "Oh, you must be my contact."

"Contact's what I had in mind," he admitted; but just then another man took her arm firmly and led her away.

"Let's talk about Xerxes," he suggested.

"Who's he? I thought the suspects were a Bird and a Crab named Lefnik."

"Shh. I'm your contact from Galactic Central Security. That's why I mentioned Xerxes. It starts with an *X.*"

"It does?" Matilda was terribly confused. "I thought it started with a Z. And who was that other man? Some sort of enemy spy trying to trick me, I'll bet."

"What other man?" her contact asked anxiously.

"The one who used the word starting with *X.*"

"What word?"

"Xmas."

"Forget him. Come on, I'll introduce you to the suspects."

The Bird was almost as tall as she, with a long, serpentine neck and four multi-faceted eyes. Its feathers were metallic. The Bird carried an odd, non-Terran musical stringed instrument, similar to a banjo in shape. This Matilda eyed suspiciously. Could it be the proverbial blunt instrument? She was strong on proverbs, thanks to her late, wealthy employer, Ambassador Richards, who'd made a private fortune publishing Intergalactic Almanacs.

Lefnik was a small, crustaceous arthropod, particularly villainous looking. No wealth of velvet robe could make him attractive to Matilda, even though he did wave his feelers suggestively in her direction.

Matilda was worried. One of these creatures planned to assassinate the Ambassador from Rogg, and his lady. These aliens were one of the odder life forms found in the Galaxy, being a type of living stone which reproduced by a method of crystallization not yet clearly defined by Terran scientists. Most Terrans referred to the Rogg aliens as Stones.

Matilda listened carefully while the Bird twanged his 'banjo' with the feathers of one wing and sang an odd, minor strain which went on interminably. Then she slunk about after Lefnik, watching from behind a tall column which was too straight to hide her profile while Lefnik stuffed his storage-claws and craw with cavier and chocolate ice cream at the buffet.

Then, when Lefnik seized a large, ornate silver nutcracker and slipped it under his robe, Matilda went into action.

"Seize that Crab!" she cried. "He means to assassinate the Stones."

Later, as Howie Pringle escorted a triumphant Matilda home, he said, "Lucky for us that you saw Lefnik conceal that nutcracker under his robe."

"What nutcracker? Without my contact lenses, everything's a blur."

"If you didn't see the nutcracker, how did you know that Lefnik was our man—uh—our Crab, and meant to crush the Stones to death?"

"Howie, it was easy. I just remembered what my brilliant, late and wealthy employer, Ambassador Richards, always said, and I knew that the Bird couldn't possibly be the assassin."

"And what did the late Ambassador say which gave you your clue, Matilda?"

"You can't kill two Stones with one Bird."

TELEVERITE

from page 43

help our television programs, I'll be impressed."

Krantz sighed.

"You're fixated on one thing," he said glumly. "Money. And you have no imagination. Anyone else would be ecstatic about MURK."

"God damn right I'm fixated on money," said Fulsome. "Somebody has to be, or you'd be eating on a breadline."

Krantz shrugged and picked up the cans, returning them to the cupboard. Then he switched off the bank of lights, and turned on the overheads.

"Don't get me wrong," said Fulsome. "Nobody can bat 1000. I loved your idea of Televérité. So this one is a bomb. We're still friends."

Krantz shrugged.

"And to prove there's no hard feelings," said Fulsome, "I want you to join me at the VIP dining room for lunch. There's a magnificent vichyssoise on today's menu with succulent quenelles."

"Will the TV monitor be turned off?" asked Krantz.

Fulsome's face fell.

"If you prefer it."

"Then I'll come," said Krantz.

Just as the one hundred filmed segments had been finally cut to five minutes each of polished splendor, a rival network exploded its bomb. Utilizing holographic reconstruction at the home receiver, a three dimensional image was projected into the living room of the viewer. The news media were all abuzz with this new development. Bennett Fulsome arrived at his desk on Monday morning, swallowing antacid pills in clusters. When Krantz came into the office, Fulsome was livid with rage.

"Scooped, God damn it," he bellowed. "While you were fooling around with paint cans, these guys came up with something really creative."

Krantz yawned.

"Not to me," he said. "Holography is old hat. I've had a prototype in the lab for years that will do what theirs can do and do it better."

Fulsome beat a tattoo on his desk with his tiny fists.

"Why didn't you tell me?" he cried in anguish. "I would have pointed out that you had a fortune in your hands."

"It's just another stupid novelty," said Krantz. "Without Televérité, they'll still be stymied by the shortage of fresh material."

"Maybe," said Fulsome. "But we could have had both."

"*We have both,*" said Krantz. "Three years ago I filed a patent on our own process."

Fulsome leaped to his feet.

"Then we can show three dimensions too?"

"Come on down to my lab," said Krantz. "I was planning to demonstrate my newest idea in a couple of months but I know you won't wait."

For once Fulsome had nothing to say. The three dimensional image projected into the room was so lifelike, he forced himself not to reach out and touch it.

"Do you want to touch the actors?" asked Krantz.

"I did have that impulse," admitted Fulsome.

"Then go ahead."

"You're kidding," said Fulsome.

"No, go ahead and touch 'em."

Fulsome did and almost leaped out of his skin.

"I can *feel* people," he cried.

Krantz nodded.

"It's that stuff in the paint can that you once derided," he said bitingly. "Remember MURK? I've deposited the three primary color attractants in three small perforated containers in the television receiver. When the set is turned on, they're attracted to the projected three dimensional scene and agglutinate around colors. When you turn the set off, three colored lamps turn on at the set in the vicinity of the containers and the MURK molecules return."

"A scene you can actually feel," said Fulsome, his voice lowered in awe.

"What's more, we project the scene lifesize so that it seems to be actually taking place in your own room. And the receiver is powered by sun batteries combined with energy storing chemicals in a container on the roof, next to the antenna."

"It could run forever," said Fulsome.

"It could," said Krantz. "Particularly since I plan to power our transmitters in the same way."

Fulsome suddenly came to life.

"It's dynamite, it's the find of the ages, it's . . . . . ."

He stopped in midstream.

"Who knows about this item?"

"Three of us, plus you. That makes four."

"In a week, it will be millions," cried Fulsome. "From now on, we'll shout it to the entire world."

Like most people, Adam Feldspar relied heavily on television as his primary source of entertainment. But there was also wine, women, and occasionally song. So the announcement of a revolutionary development in television transmission and reception did not even raise his eyebrows. As he sat in the fetid air of a swaying subway train, he read the item in a cursory manner—the wedding of holography to the cathode ray tube, the reconstruction and projection of lifesize images into your living and bedrooms in full, four dimensional time-space arrays. And there was something else about a special kind of molecule called MURK.

Adam yawned, wet his finger, and turned to the sports page. But the printed account was dull like most of life and he finally closed his eyes and dozed

Given the proper incentive, any man will give up his real world for the ideal dream world. Especially when he can create it himself.

fitfully until he reached his business stop. Adam was a computer programmer, working primarily with programs in the interpretative language of FOLDROL, an ingenious compilation which enabled the simultaneous keeping of three different sets of books, only one genuine. But his work was routine. The devices for avoiding tax payments were well established and he found no challenge in anything he did.

It was not apparent to him, at first, even after he purchased one of the new television sets, that the programs were becoming more exciting to watch. He was dimly aware that he was focusing his red veined eyes more frequently on the Tube and the quality of the programming had taken a giant step upward. The sequence of three dimensional ninety minute dramas explored in depth every facet of human experience.

In one weekend, he found himself observing the full gamut of sexual relations between men and women, men and men, women and women, and some pastoral variations involving a shepherd and his flock.

At work, Adam found himself bored to tears, impatient and eager for the work day to end so that he could return home and open his mind, his heart, his sensory organs to the whole of human experience via video.

As months and years went on, he sometimes felt, in the course of conversations or activities with colleagues or friends, that he had heard all of this dialogue somewhere before. But he wasn't certain where.

One evening, as he dallied with a winsome girl friend on his twenty foot circular bed under swaying ostrich plumes, one eye glued to the four dimensional panorama in the space just beyond their entwined bodies, he was severely jolted at seeing those entwined bodies revealing an inquisitive eye *looking back at them.*

Adam promptly disengaged and sat upright.

"My God," he said. "They're doing what we're doing."

His girl friend was much more pragmatic.

"Perhaps we're doing what they're doing," she said.

"Come on," he said peevishly. "We're real and they're fictitious characters."

"Of course we're real," said his girl friend. "The proof is quite simple."

"How simple?"

"We're the ones asking the question of who is real and who isn't. They aren't."

Adam looked at the scene again and saw to his intense relief that the characters were not discussing him and his girl friend.

But less than a month later, as he munched on a hot organically grown TV dinner, Adam discovered that the actors *were* debating the question of *his* reality. He turned off the set, fuming at this intrusion into his privacy. That evening, he paced the floor in high dudgeon, boiling with anger.

"Modify our receiver? Nonsense," said Bennett Fulsome. "It's perfect as it is."

"There have been many complaints," said Krantz. "Read some of these letters. People talk of their actions being mimicked. Of privacy being violated."

"So?"

"So I've taken the next logical step. I'm adding memory banks to all of our receivers. Each of our one hundred filmed scenes will be digitally stored in memory *at the set.* But the biggest innovation is that the viewer will be able to influence what's projected."

"But why?"

"Not why, how. I'll tell you how. If the viewer should ask a question which relates to the action in our scene, the dialogue will be altered to answer him. The computer program required is incredibly simple and involves focusing on certain key words."

"But then the viewer becomes part of our film. The advertisers won't like that."

"They'll have to," said Krantz. "Because then there's no longer an issue of privacy being violated. The viewer becomes as much a part of the film as the film is part of his life."

Adam Feldspar was annoyed when two technicians came into his home and mounted a small adaptor box on the side of his television set.

"What's it for?" he asked petulantly, annoyed that he had already missed one third of a film.

"There's no charge for the installation," said one of the technicians and they walked out of his house.

He turned on the set and watched as two nude figures appeared cavorting before him.

"I wish I was doing that," he said aloud.

The figures stopped for a moment.

"Why don't you join us," said the feminine one.

She put out her hand. As if in a hypnotic spell, Adam put out his hand and felt the warm pulsation of her flesh. He tore off his garments, buttons popping like corn, and flung himself on to the white sheeted bed. He bounced a little, and then he found himself a part of a tangle of three sets of legs.

The arrival of the space vessel from a distant galaxy came thousands of years later. There was a very strong feeling of apprehension before the landing.

"As you all know," said the Captain, "fifteen years ago, our sister vessel, the Vanguard, landed safely on this planet. There was a brief preliminary message sent by neutron beam and then total silence. Thereafter, we sent the Moonbeam, the Wanderer, the Anchorite, and the Taciturn. All reported safe landings and then severed communication."

"Are the aborigines of this planet violent?" asked the second mate.

The Captain shrugged.

"We don't know. We expect bilateral humanoids very much like ourselves. All of the evaluations of our scientists concerning the environmental conditions under which life would develop, points in that direction. But we can't guess how long the evolutionary process has gone on. And none of our predecessors reported anything about the inhabitants of this planet. So let us take all possible precautions before emerging into the atmosphere of this new planet."

The actual landing was uneventful. After coming out and sampling the atmosphere, they discarded their space helmets. It was virtually the same mixture of gases breathed on their own home planet.

"A very favorable sign," said the Captain and the crew nodded their heads. "Now send back a message to announce our safe arrival."

They came first upon the Vanguard, nestling snugly on a sandy beach. Nearby was the Moonbeam, the Wanderer, the Anchorite, and the Taciturn. All were empty. The crew looked at each other and everyone took tighter grips on their weapons.

Further on, they encountered a series of tall structures and after sampling the metal surface of one with various chemical tests, they all remarked on its durability.

"It's very much like our own stainless steel alloys," said the first mate.

"Indeed it is," said the Captain. "And it seems impervious to erosion. Open that door and we'll see if anyone is about."

Inside they found empty hallways and floor after floor with many numbered doors and little nameplates.

"It looks to me like this is a form of habitation," said the Captain. "I think we have to take the risk of forcing open one of these doors and searching within. Keep your weapons at firing readiness. These humanoids may be primitive in their social relations."

At the door bearing the nameplate *Adam Feldspar* they worked with a bright, cutting beam, and the severed rectangle fell inward. They bore in, single file, muscles tensed. And then they entered a room and saw the creatures cavorting. The Captain stared.

"See that," he said quietly to the crew. "They *are* very much like ourselves in appearance. The evolutionary hypothesis was correct after all."

One of the creatures had stopped at the sound of the Captain's voice and reached out an inviting hand.

"Don't risk it," said the first mate, apprehensively.

"Nonsense," said the Captain. "They seem friendly enough."

He reached out his hand and felt the warm pulsation of the creamy flesh. He unfastened his space suit, grips sucking apart with whooshing sounds, and flung himself on to the white sheeted bed. He bounced a little and then found himself a part of a tangle of three sets of legs.

"Captain," cried the first mate. "Are you all right?"

"Marvelous," called back the Captain. "Never felt better. These humanoids aren't barbarians at all, but warm and friendly like ourselves. It's essential that we win their friendship, so each of you must go out and find his own household and join in as I have done."

Suddenly he sighed. It was an unusual sound, deep, warm, heartfelt and soul satisfying.

"Captain?" asked the first mate.

There was no reply.

"What do we do now?" asked the second mate.

"Follow the Captain's orders," said the first mate.

They turned about and left the room, reentering the outer hallway.

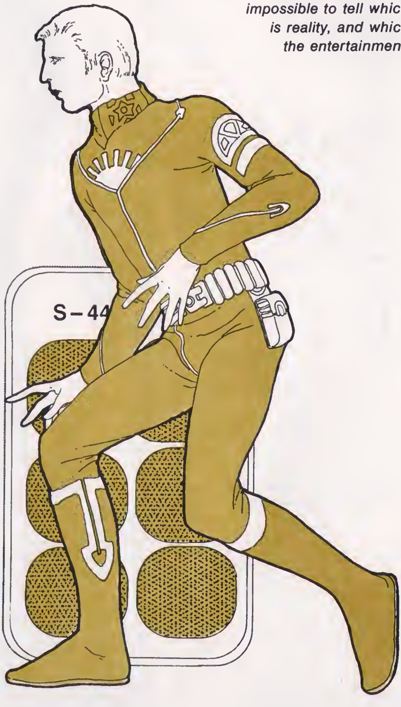
"Shall we send back a neutron message?" asked the second mate.

The first mate pondered the question. And then he remembered the Captain's sigh.

"Later," he said. "But first, let's open that door over there. And since I'm next in command, I'll do the fraternizing this time. I must find out why the Captain sighed."

By nightfall, every member of the crew knew. ○

When you can join right into the entertainment, how long will it be before it becomes impossible to tell which is reality, and which the entertainment.



Tower of Babble

fiction/Rachel Cosgrove Payes
artist/Tim Kirk

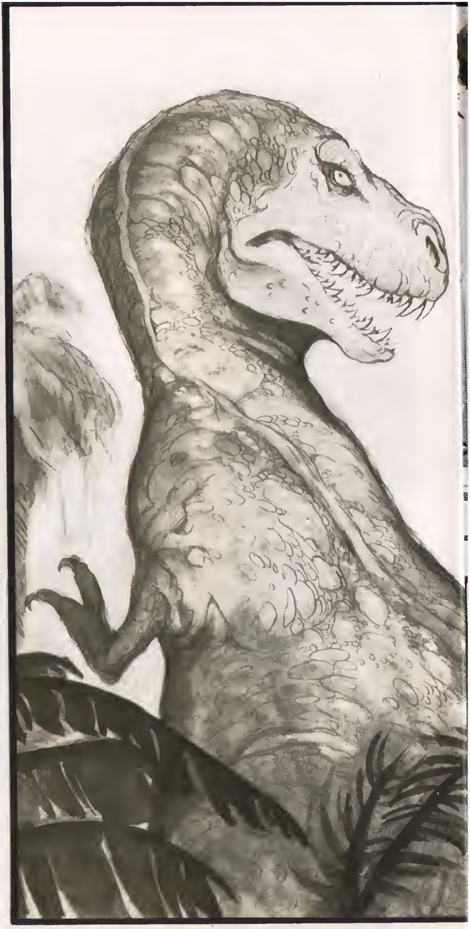
Tom Kellerman stood outside for a moment, neck craned back, looking up at the Time Travel Tower. Then he went inside and strode with purpose to the private elevator that would send him soaring to the penthouse suite.

Miss Mayberry favored him with what might have been a smile. It was difficult to tell with Miss Mayberry. Kellerman's private theory about her was that she was afraid her exquisitely made up face would crack if she deigned to smile on the hired help.

"He sent for me, Miss Em."

She didn't frown, either; although he

It wasn't really in his field, but the job had been assigned to him, and come hell or high water, he was going to find that killer dinosaur.



KIRK

No one knew just what kind of animal it was he had to kill, or what kind of weapon he might need, so they tried to equip him for every possibility by giving him his wits and very little else to work with. After all, what dinosaur could possibly match a man in brain power?

was sure that she hated being called Miss Em. Someday Kellerman was determined to surprise her into a display of emotion—perhaps a raised eyebrow—and the whole façade would crumble.

Touching a switch with one elegantly perfect finger, Miss Mayberry murmured, "Mr. Kellerman has arrived." Then, to Kellerman, "Mr. Franciscus will see you now." Her tone was suitably reverent, as if Kellerman were being granted an audience with Deity.

Franciscus sat behind the vast expanse of desk, a great toad waiting patiently for some unwary fly to venture too close. Today Kellerman had the distinct impression that he was to play Sir Fly.

"Sit down, Kellerman." The president of Time Travel, Inc., didn't waste words—nor time—for time was valuable. With his business acumen and a lucky find in one of the research labs he owned, Franciscus had parlayed time into the most spectacular money-maker of the Twenty-First Century.

Kellerman could be laconic when he chose, too. "Trouble?"

"On the dinosaur hunts."

So the rumors were true. Kellerman had heard that there'd been some sort of trouble on several recent trips into the Mesozoic Era; but there'd been no specifics. In fact, Kellerman felt that Time Travel was probably doing a superb cover-up job, trying to protect its astronomical investment.

When Franciscus had first offered time travel to the past, the public thought it a magnificent hoax. There were a few bold ones—or fools—who decided that five hundred thousand credits was cheap enough to go back and view history while it was being lived. They were Time Travel's best salesmen. Soon the tours into the past were grossing a billion annually, the outfit had grown from one tiny time machine in a rented office to the Time Travel Tower, two hundred stories high, with hundreds of the newest time travel units working at capacity to accommodate the eager travelers.

"Just what's the trouble, Mr. Franciscus?"

For answer, Franciscus touched a control on his desk, the windows opaqued, a screen dropped from the ceiling, and a 3-D projector switched on.

The scene was a hospital room. In the bed was a man Kellerman recognized.

"Tryon? Isn't that Dirk Tryon?"

"Right. Listen."

The quality of the picture was so good that Kellerman felt he was in the hospital room with Tryon, one of Time Travel's top guides into the Jurassic and Cretaceous. Tryon was one of the finest dinosaur hunters in the business, scouting out the huge reptiles and leading his groups close enough to get magnificent pictures without imperiling either dinos or humans. His record was clean—there'd never been a casualty when Tryon was guiding.

Kellerman could see Tryon's lips moving rapidly, and when Franciscus touched another control, sound came up.

"Exaggerated, magnified, hyperbolic, enlarged, amplified, overdone, overlarge—"

Another voice, from someone off-picture, murmured, "Did you see a dinosaur?"

"Allosaurus, Atlantosaurus, Brontosaurus, Ceratops, Ceratopsia, Dinosauria, Diplodocus, Iguanodon, Megalosaur, Ornithopod, Palaeosaur, Pterodactyl—"

"What happened, Tryon? Were you attacked?"

"Attacked, assaulted, assailed, gone at, come at, set at, put at, launched out against, made a dead set at—"

The voice cut in, quiet, soothing, and the flow of words died on Tryon's lips.

"Tryon, we have to know what happened to you so that we can help—"

And Tryon's voice, a higher pitch now, as he sat bolt upright in the bed, "Help, assist, aid, succor, relieve, benefit, favor, befriend, come to the aid of, lend one's aid, boost, support, sustain—"

His voice went up a full octave, and his eyes seemed bulging from his head. A uniformed figure moved into the picture, a male nurse who firmly pushed Tryon's shoulders until he was forced back onto the pillow, gasping for air.

A second voice, also off picture, suggested, "I think he's had enough questioning for now."

"But doctor, he just talks gibberish. I say a word and that seems to trigger this verbal diarrhea."

"I warned you, Mr. Soames. He's just like the other two."

"Can't you get any sense out of him? We have to know what happened back then—if this gets out, it will ruin business."

The doctor's voice was dry. "Yes, business. The way it's already ruined Tryon."

Franciscus cut off the projection.

"Tryon's the third guide who has come back that way. Each man has gone out, alone, to scout the dinos—you know how we operate. When a client pays the prices we charge to be sent back in time to take holos of a dinosaur, he wants good pix—no point in wasting his time if the reptiles aren't there."

"And you say they all—all three men—act the way Tryon did? That babbling?"

Franciscus sighed. "Three of my best guides, ruined unless the shrinks can do something. And all alike. They run off at the mouth—well, you saw, you heard."

"And there's no clue as to what brought on this condition?"

A negative shake of the bloated toad head. "We *think*—or the shrinks think—that it's a fright-induced thing. Something psyched them. The guess is a dino of some sort, from the words they babble."

"But Tryon, at least, has been guiding for years," Kellerman objected. "He's seen them all—remember, I was along the time we ran afoul of that crazed Tyrannosaurus. Tryon didn't panic—it didn't faze him."

"I know, I know. But something has happened back then in the Cretaceous, and we've lost three good men. Some medics think it might be some sort of extrasensory something—but that's just a guess. Kellerman," the man leaned forward, eyes slightly popped, "if we have this happen to a client, the scandal would break us. Instead of calling this building Time Travel Tower, they'll call it the Tower of Babble. Time Travel's never had an accident, never lost a client; but if we bring back one—just one—a gibbering idiot, we're finished."

"I can see that. So what do you want me to do?"

"Go back into the Cretaceous and see what's causing this trouble."

Kellerman had seen it coming. There was no other reason to call him in.

"But I'm not a guide, not trained in any of the techniques."

"You were along with Tryon," Franciscus pointed out.

"As a paying customer," Kellerman said drily. "Through the nose, I paid. Tryon was my guide, not vice versa."

"I know; but I know your reputation, too, Kellerman. You're the only man I know who might solve this problem. We can give you hypno-training in the guide techniques. You'll wind up with the combined knowledge of all our best men, including the three who've come back with damaged minds. Intensive training."

Kellerman knew he'd take the assignment. It was a challenge, and there was so few things these days that challenged the whole man, mentally, emotionally and physically. Basically he was a man of action, blessed with brains. The success of Time Travel's tours into the Jurassic and Cretaceous was a testimony to the fact that there still were men and women who needed physical challenge as well as mental and emotional problem solving.

But he'd not make it too easy on Franciscus. He'd get back everything he'd paid for his own dino hunt, with interest.

"My fees are high, Franciscus."

"One has to pay for the best. That's why my enterprise has flourished—I offer the best entertainment that can be found. So I am willing to pay for your services, because I think that you, and you alone, may be able to solve this problem for us."

"Then I'll take on the job."

Kellerman found nothing the first day, no tracks, no spoor of any kind. Now he understood the value of Time Travel's highly paid guides. Return to the 21st Century that night was impractical, as the energy required for each transfer in the time machine was prohibitive; so he camped near the camouflaged booth, hiding the tent in a clump of head-high ferns. He carried the standard stunner. Regulations were very strict; nothing could be killed in the past, for fear of creating a time paradox. The stunners were effective—he'd seen Tryon stop an enraged Tyrannosaurus, most vicious of all the dinos, with a similar stunner. Kellerman hoped, though, that he wouldn't have to use it.

Next morning he waked early, aware of a heavy thudding that jarred the ground under his sleeping bag. Dinos. Kellerman didn't need binoculars to see the two huge brontosaurs thudding along, eating their way to the nearby waterhole. He'd holo'd brontos on his earlier trip, with no ill effects to his mind. The problem had to be something else.

As the day progressed, Kellerman ranged further from his base camp, seeing ankylosaurus in the distance, watching ornitholestes race by on its clawed feet, and sighting a large pteranodon flapping overhead. Nothing unusual. No new specimen to produce the brain overload that had shorted out Dirk Tryon and his colleagues.

It was nearly dusk. The sun hung low over the misty swamps, and Kellerman hurried back in the direction of his tent. He had a week in which to solve his problem; but Franciscus was no fool. He'd offered Kellerman a bonus on a descending scale as an incentive to a rapid solution. Then, with the homing device on his wrist beeping him to within a thousand feet of camp, Kellerman had his first inkling of trouble.

It was as if he had been subjected to a sudden, unexpected blast of noise; but it was a silent blast, a kind of mind-wrenching sensation that was subjective, internal instead of external. It was so painful that Kellerman staggered, almost falling. He clutched his head, trying to hold it together, keep it from exploding.

As quickly as it had come, the sensation was gone, leaving him with a throbbing head. Now he did not know whether to try to make it to the camp, or to go on hunting. As his head ached

turn to page 80

TIME SCOOP

from page 51

but moving parts are almost nonexistent."

Tony enquired: "Can you do the servicing yourself?"

Chen Kostov looked dismayed. *"Ai!* I'll have to, now, won't I? . . . I think so."

Alan went on: "Tony, let's take Chen back to meet the others."

—V—

The space pilot had no trouble matching his speed with that of the Camel. Two hours later, they arrived at the beach.

Leif and Don Luis liked the new time exile. Even Thorkildson's uncouth Norsemen responded warmly to the man from the 38th. Century.

That night, in the galleon's wardroom, Alan noticed the bonhommie. As if Chen's coming had evoked the latent enjoyment of life that being trapped on this planet had submerged. The wine and good food helped, but the general repartee couldn't entirely account for it.

Alan turned to find Tony watching him. The other grinned, said *sotto voce;* "He's certainly something special, eh? We *needed* him."

The Canadian nodded slowly.

Next day, Alan, Tony, Don Luis and Leif boarded Chen's spacecraft. The interceptor pilot waved them to couches, took his place before the instrument console. In moments, the ship was out of the atmosphere.

Tony asked: "How many Gs are you giving her, Chen?"

The other gave the American a puzzled glance. "I don't understand."

Zambrowski continued: "At how many gravities are you accelerating?"

Chen Kostov laughed. "Oh, I see . . . Really couldn't tell you, Tony. We've bypassed the necessity for such yardsticks. Freedom from gravitational attraction also implies freedom from the stress of acceleration."

The U.N. pilot whistled appreciatively. "Great Scott! You must be traveling at more than 10 gravities."

Darzelian shrugged. "These problems were solved a long time ago." He turned thoughtful. "It must have been an excruciating business back in your day, though."

Tony said fervently: "It *was,* friend, it was."

At 20,000 miles above the planet, the ship slowed. Chen relinquished control to the autopilot, looked at the others.

"Let's find out a few things about this new planet of ours."

The time exiles gathered close as he concentrated on his instruments. They watched the stubby fingers dance quickly over the console. Finally, he glanced up with an expression of surprise.

"It's so close to Earth's diameter as to be remarkable! The mass is less, though. Probably fewer heavy elements. Gravitational attraction is .83 of Earth normal. Have you noticed that you don't tire as soon here?"

Alan snapped his fingers. "And I thought it was because I was free of the stress of Bloody April!"

Tony shook his head vehemently. "It's more than that! You're right: I certainly have more energy these days."

Don Luis expostulated: "These scientific wonders make me a little envious of you from the later ages!"

Alan grinned at him. "Everything's relative, Don Luis. When I was younger, I wished I could've lived in *your* age."

Rodriguez stared hard at the Canadian. "You really mean that, don't you? I suppose it is true: one tends to think the distant place more attractive than one's own."

The huge Viking peered at the planet on the ship's screen with stark disbelief.

"And *that* is the strange world to which we have been abducted? That tiny, insignificant ball?"

Chen Kostov laughed. "Consider it a kind of magic, Leif."

Thorkildson looked suddenly afraid. "It's a magic that makes gods of us—and I am not sure whether I am ready to be a god!"

The others laughed sympathetically.

Alan slapped the Norseman's broad back. "I'm not sure I am, either, Leif. But we must accept our fate, eh?"

The Viking nodded. "You are right, Alan Mackenzie. Thank you."

Darzelian made further observations, establishing that the system contained five planets. One considerably closer to the sun, the others further out. The closest was a burned-out cinder, lacking atmosphere or interest. The outer worlds were huge gas giants, their atmospheres inimical to any carbon-based lifeform.

Zambrowski asked: "What's your range, Chen?"

"Virtually unlimited as to fuel. Air and water must be replenished every six months, but the recycling system is highly efficient. We only need new supplies so as not to put too heavy a load upon it. Food is the main problem: I have to put new elements into the synthesizer every three months for the same reason I don't overload the recycling equipment . . . Why do you ask?"

Tony had a gleam in his eye. "Then we could leave our strange planet and its system? Go searching for old Earth?"

The Eurasiatic didn't answer for a while. Finally he said:

"All right. Take your couches, my friends. We're going out-system."

Tony clapped his shoulder. "Good man!"

But Alan Mackenzie noticed Darzelian hadn't quite answered the American's question—and wondered.

Chen Kostov programmed his course, turned to the others.

"I'm going to make a phase-jump twenty light years out of this system. Do not be alarmed by the sensation. It'll be over in a moment."

He made adjustments to his instruments. Mackenzie experienced a sort of roller-coaster-dropping sensation, then it was over. He shook his head to clear the cobwebs. The others were doing the same. Only Darzelian seemed unaffected.

They left their couches as the Eurasiatic beckoned. He punched more buttons. A transparent grid slid from the wall above the ship's screen. They saw it was a star map showing familiar constellations.

"That's a view of the inner galaxy—our own Milky Way—from Home System. Now I'm going to attempt to synchronize it with what we observe from here." He pressed a switch; the big screen activated. But the star map's constellations hadn't the slightest resemblance to those on the screen.

Chen said. "This next star map is taken from a different perspective: 50,000 light years away at galactic center. The direction is toward Home System."

He depressed a switch: the first map was replaced by another. Constellations immensely more concentrated. But they bore no similarity to those on the ship's screen.

Tony's forehead glistened with sweat. He finally understood what the space pilot was trying to tell them.

He hissed. "Other star maps, from different reference-points!"

For the next twenty minutes, the lemon-skinned pilot showed them a procession of star maps with different points of reference. It made no difference: not once did any of them synchronize with what was on the ship's screen.

Chen Kostov turned to them, extending his hands. "You see? We have no idea where we are, or which direction to take." He became grim. "In fact, we cannot even assume we're *in* the Milky Way."

Alan exploded: *"Not even our own galaxy?"*

Leif made a gesture of rejection. "It's

From the Roman Empire to the Fifth Interstellar Empire, the only thing they had in common was their ability as warriors.

too much for me," he said. "I do not understand."

The Spaniard cried: "By the Holy Mother, I *wish* I didn't!"

Tony wiped his forehead. His swarthy features were wan in the cabin's illumination.

"What if we jumped a certain distance one way, then back. The same distance another way, and so on?"

Chen stared sadly at him. "Without familiar points of reference, Tony, we would become hopelessly lost."

There was a long silence.

Finally, they turned listlessly to the couches and Darzelian phase-jumped back to their system. When they reached the planet, he dropped to the beach without another word.

To Alan Mackenzie, the sight of the longboat and the galleon in the roads was like coming home. But he shivered as he stepped from the spaceship.

Depression hung heavily over the time exiles. Even Chen Kostov's sunny personality couldn't lift them out of it, so he left on an exploratory probe of the planet.

Alan, Tony and Don Luis flew to their jungle field to get spares for the two aircraft. En route, Tony seemed moody and remote.

When they landed, Alan asked Tony what he was going to do and if he needed help. The American gave a disdainful shrug, walked without a word to his hangar. Mackenzie stamped furiously into the Bessoneau, fervently wishing he had some ammo.

And there it was—a case of machine gun bullets.

With an inarticulate cry, Alan grabbed a crowbar and prized off the lid. The ammo was as new as if it had just rolled off a production-line. The Canadian's mind was suddenly aflame with a pulsing red haze. Tearing out to the Camel, he ripped the empty belts from the Vickers guns. A few moments later, he was back in the hangar with the Spaniard, selecting bullets with great care. Too many World War I pilots had lost their lives because of jammed guns. Alan Mackenzie had learned the survival value of choosing his own bullets.

Rodriguez watched with a puzzled expression. He was worried about his friend. But he continued to assist with the bullets. The Canadian soon had the two belts loaded. He dashed outside.

To insert the belts into the Vickers guns was the work of moments. Don Luis hadn't seen machine guns in operation. But he knew from Mackenzie about

From throughout the ages they had been brought to this planet, and now their host demanded that they fight.

their destructive potential.

"Alan," he said anxiously, "what are you going to do?"

The other's gray eyes blazed from a frozen mask of a face.

"What am I going to do?" he echoed hoarsely. "*Wait and see.* I've taken all the insults I intend to from that damned Yank. Now it's my turn!"

Gesturing impatiently to the grandee to spin the prop, he climbed into the cockpit. They went through the engine warm-up. The Le Rhone coughed and spluttered, emitting clouds of fumes. Finally, it caught and, as the grandee stepped hurriedly out of the way, Alan gunned his machine down the field.

Don Luis had noticed Tony running between hangar and rocket-plane before Mackenzie took off. Staggering under the weight of long, tapering objects. He realized the American had found his missiles. With a sense of impending disaster, he watched as the second aircraft took off.

Red rage engulfed Alan Mackenzie. All the buried resentment of coming from an earlier era with slower and less effective equipment erupted from his subconscious. *That bloody Yank had thrust his vaunted superiority down his—Mackenzie's—throat once too often.* He'd teach the bastard a lesson! A still, small voice protested that he couldn't hope to engage an aircraft so much faster and survive. But the Canadian's fury swept away such considerations. The Yank's greater speed could be used against him as RFC pilots had done against the German Air Force in '15 and '16. As for his rocket missiles—balderdash!

The Lockheed Vulture had soared high into the stratosphere. So far that it was only a black dot against the sun.

Alan shook his fist at it. "Good-o, my bloody Yank friend! Use your extra altitude and speed. *You'll need it.*"

Major Tony Zambrowski leveled off and dived. He'd show that damned Canuck who was top dog! He'd plaster his ridiculous prehistoric crate all over the jungle.

The U.N. pilot fixed Alan's position on radar. At a distance of two miles, he fired four missiles.

When they arrived, the Sopwith was at 16,000 feet. Three missed, but the fourth was on a collision course. The red haze of battle dimmed as Alan saw his danger; he threw the scout into a roll. The missile passed through the space the Camel had occupied seconds before. He heard dull explosions as the first three crashed into the jungle.

Sweat was pouring from him now as the Canadian realized what he was up against. He must have been mad to think he could succeed against Tony's superior speed and weapons.

The Lockheed Vulture came screaming down upon him. Mackenzie started to twist his machine out of the other's path. Rocket missiles were again flashing at him. With a strangled curse, he whipped the Sopwith around to rake the rocketplane. The twin Vickers hammered, he saw the probing fingers of tracers thudding into Zambrowski's rear section. Just for a moment, then the Vulture was out of range. And once more he'd eluded the missiles.

Tony felt the bullets' impact with alarm. His overweening confidence wilted as he realized the difficulty of shooting down an aircraft as slow as the Camel. As he began to pull out of his dive, the big machine handled sluggishly: *Alan's bullets had damaged his tail section.*

Suddenly, the American was shaking uncontrollably. He wondered what in the name of damnation he was *doing* up here, trying to slaughter his closest friend on this planet.

At last he got the nose up, started to reduce speed. The big ship yawed in the dense lower air. For agonizing moments, he fought to reestablish control. Then he was able to ease back towards the field.

Alan Mackenzie returned to sanity as he brought the Camel in to land. He felt sick and ashamed; what had possessed him to tackle Tony that way? *Wait—a—bloody—minute. Where* had that ammunition come from? And Tony's missiles?

His brain was working again as he bumped along the ground. And the answer he was getting made icy fingers crawl up his spine.

When Mackenzie climbed from the cockpit, Don Luis and Tony were waiting anxiously for him.

The American said: "Alan! *I'm sorry.* I musta been outta my head—"

The Canadian nodded. "We both were. The powers-that-be made their marionettes dance a battle tune."

Don Luis smashed a fist into his palm. "The appearance of the missiles and the machine gun ammo!"

Tony passed a shaking hand across his eyes.

"Good God! I thought I'd flipped my lid."

Alan slapped his shoulder. "You did, old son, you did! So did I. But don't blame yourself: when our masters pull the strings, we've got to jump, haven't we?"

The Spaniard swore: "Mother of God—this is unspeakable! Is there nothing we can do to stop it?"

Mackenzie's expression was bleak. "Not yet, Don Luis. All we can do is pray that something turns up."

It took them three hours to repair the damage to the Vulture's tail section. Then they took off.

—VI—

At the seacoast, Chen Kostov had news.

"I've found two other groups. On the far side of the mountains, halfway down the southern part of the continent: a regiment of Mongol cavalry and a chariot squadron from Amenhotep IV's Egypt. Locked in battle. Afterwards, the same thing as your experience with the archers and the cohort—the dead returned to life, the weapons recovered."

Alan told the lemon-skinned man what had happened to Tony and himself. Darzelian didn't say anything for several moments. Then—

"We must find a way to nullify whatever is causing these berserker rages. It's *got* to be some form of radiation. And I've got an idea. Follow me!"

They entered the spaceship's control room. Chen pointed to an instrument on his console.

"This device measures electromagnetic radiations down to extremely short wavelengths. We'll have to fly around till we come across another berserker incident. Then we'll try and work out some method of defence against the radiation."

Alan's plane being so slow, he joined the grandee in the phase-jumper with Chen Kostov. Tony took off behind them in the Lockheed. They cruised across mountains and grassy plains for several hours without any luck. Darzelian finally landed on a plateau for lunch.

While they were eating, a warning device shrilled, bringing Chen rushing to the control seat.

"Something's approaching from outer space! To the couches; we mustn't be caught on the ground."

The others did as directed. The space pilot shot his ship up to a position five miles above the surface. Checked his instruments.

"It's about our size. I don't know what kind of propulsion he's using, but it's every bit as good as my craft, if not better."

Darzelian got a fix on the stranger; the ship's screen came to life. Alan drew in his breath. The vessel was an oblate spheroid: there was something sinister about it. The Eurasiatic activated his force screen just in time to fend off a voracious laserbeam. His lemon-colored skin glistened with excitement as he hissed:

"This is what we've been waiting for!"

Chen consulted his measuring device, nodded with satisfaction.

"Extremely short wavelength. And it's coming from deep space."

On screen, the intruder changed course. Its laser winked out. For half a dozen heartbeats, they waited. Then a metallic voice came over the ship's communicator.

"Calling unidentified spacecraft five miles above planet."

Chen Kostov used his wrist mike. "Receiving your message. Proceed."

The cold voice continued.

"I seem to have lost my way. I was engaging a Krull destroyer off Drenda III when I suddenly found myself near this planet in an unfamiliar system. My instruments record unknown star patterns. What do you know of this?"

Darzelian laughed. "You've been scooped up by forces unknown and transported here—whatever that may be—for reasons not yet clear to us. The same thing's happened to a number of us. Welcome aboard!"

Embarassment crept into the chilly voice. "Sorry about the laser attack. My battle instincts were aroused."

Chen replied: "Apologies accepted. Not to worry. Your attack provided us with valuable information. Follow me down and we'll tell you about it."

The other's voice became less frigid. "Lead on, then."

There was something decidedly curious about that voice, Alan thought, as they landed on the plateau. The spheroid-ship planeted nearby, but nobody stepped forth. After several moments, Darzelian said:

"He's still wary of us. We'll have to go to him."

As they made for the strange ship, Tony joined them from the Lockheed. A section of hull close to the ground slid back; they entered. Walked down a dimly-lit corridor towards the front of the vessel.

The control room was starkly functional. There didn't seem to be any concession to human needs. In fact, there were no passenger couches or seats before the console!

The other's voice came to them:

"You understand?"

Chen Kostov said excitedly: *"I—think—you—are—the—ship."*

The cold voice answered: "Correct. I'm a sentient combat boat of the Korlash Empire."

The Spaniard was flabbergasted. "Mother of God!"

Tony grinned. "I had a strange presentiment. Your voice was too metallic, too cold."

Darzelian interposed: "I'm Chen Kostov Darzelian, Colonel of Space Interceptors from the Second Terrestrial Empire. I was fighting to repel the Varsegs of Altair IV when I was brought here. How much further in the future are you from?"

The combat boat pondered. "The Second Terrestrial Empire? That was overrun by reptilian invaders six thousand years before my time! It took the human race two thousand years to rid themselves of the alien yoke . . . My period is eight thousand years after the fall of the First Technological Civilization."

Chen nodded somberly. "I was afraid the Varsegs would win . . . About yourself—were you built by men?"

The chill voice became almost human. "Indeed I was. The Korlash Empire was born from the Fifth Wave of interstellar colonists out of Home System. You could say I'm sort of distant cousin."

The tension in the control room was released: the others laughed.

Alan said: "We must have some sort of name for you!"

The combat boat replied: "Of course. My numerical designation is 856/7109. Or you could use the term my builders came up with in the biomechanical labs: sen-boat."

They settled on 856 which seemed to please the combat boat.

Colonel Darzelian asked: "What were your sensations when you came across that threshold?"

856 answered: "Confusion. A moment of acute disorientation and pain, then I went wild with battle lust."

Tony nodded. "That was when you opened up with the laser. What then?"

"The fury disappeared when I realized I was somewhere else. Disorientation still present, but it no longer overwhelmed me."

Chen Kostov said: "While you were attacking, we were studying the radiation in your vicinity. We've become convinced that the periodic outbursts of berserker madness which cause us to tackle one another are the result of some form of electromagnetic vibrations. And we were right: you were enveloped in radiations of extremely short wavelength. But they stopped abruptly, as though their sender had become aware of our surveillance."

The sen-boat asked: "You say that others among you have experienced this same battle fury?"

Tony replied: "Alan and I attacked one another in our aircrafts several days ago. Originally, there hadn't been any ammunition for his guns, or missiles for my rocket launchers. Then they appeared. At that moment, we seemed to go crazy, wanting only to kill each other."

Darzelian added: "This was by no means an isolated incident. Other groups here have also suddenly attacked each other. When the berserker lust departs, whoever's been slaughtered during the fray, recovers, their wounds disappearing instantaneously."

The sen-boat sounded thoughtful. "These bouts of madness would appear to relate to the reason or reasons for which we have been abducted to this planet?"

Alan nodded. "That's what we think. Whoever or whatever is responsible only scoops up fighting men; in your case, a fighting machine. We arrive on a planet in an unfamiliar part of the galaxy, or another galaxy for all we know. It seems *They* require representatives of different ages. *Why* we don't know."

856's drive mechanism was a more sophisticated form of Chen's phase-jumper. The Korlash Empire physicists had extended their knowledge of hyperspatial continua and integrated it with the Eurasiatic use of spatial force-lines. The resulting propulsion system gave 856 intergalactic range without the necessity of recycling equipment. For all practical purposes, the sen-boat was immortal—unless destroyed by accident, or a superior enemy.

The combat boat wanted to survey their planet, so it took Leif and Don Rodriguez aboard, rigging up seats for them. Alan joined Tony and Chen Kostov in the phase-jumper. The expedition found that the continent was positioned almost equally north and south of the equator. The northern part half as large as Noramerica; the southern portion reminding them somewhat of Australia. Climatic conditions varied from jungle and desert, to mountains and grassy plains. Equatorial temperatures averaged the mid-eighties, with concomitant humidity. But the northernmost section was milder than similar Earthly regions. The tundra caused Alan to think

They were trained to fight, so fight they did. But for themselves, not for their erstwhile masters.

nostalgically of his beloved Northwest Territories.

In every climate zone, they found fauna reminding them of home. There was, however, less insect life and the time exiles were saddened not to find any birds at all.

The island-chain in which they'd discovered the Romans and English extended 1,230 miles west. They found further archipelagoes as they continued around the planet, but no other continents.

The planet occupied an orbit approximately forty-seven million miles from its luminary. They hadn't been making observations long enough to establish perihelion or aphelion. The planet had two moons: one, eleven hundred miles in diameter, the other, nineteen hundred miles. Both were meteor-pocked and without atmospheres.

Back at Home Beach, Chen Kostov fed his "berserker" data to the sen-boat's computer. 856 commenced building a selective energy absorber, programmed to respond only to radiations within the "berserker" frequencies. The combat boat had a lab-cum-workshop in which the job was accomplished within six hours. They installed the device in a small satellite provided with a miniature drive mechanism similar to 856's propulsion system.

Next day, the satellite was taken into space and released from the sen-boat in an orbit 12,000 miles above the planet. It made a complete circuit every two hours in an equatorial orbit.

Darzelian had installed a warning device in the energy absorber, geared to alert both sen-boat and phase-jumper when berserker radiations registered. Nothing happened for two days. On the third morning—

The warning device rang.

In his control room, Chen contacted 856. "The alarm has been tripped. How are the satellite readings?"

The sen-boat's metallic voice answered: "Absorption of berserker radiations 100%. The intensity shot up by a factor of fifty after the first thirty seconds. But the absorption mechanism is still operating well."

After the next thirty seconds: "Intensity's climbed by a factor of 100. Our device is now gorging itself on berserker frequencies. But nullification remains complete."

Another minute passed. The berserker vibrations ceased. Simultaneously, a radiant sphere appeared in the middle of the control room. It dilated. A ferocious-looking gargoyle with a monstrous cranium stepped from the sphere, stood glaring at the men with huge lemur eyes.

It hissed: "How dare you interrupt the experiment!"

Tony snapped: "We refuse to be treated like guinea-pigs."

The gargoyle stamped a diminutive foot.

"It doesn't matter *what* you like or dislike. You are here to do my bidding. I want to study you quasi-humans at your war-games. Why else would I have gone to the trouble of bringing you here?"

Don Luis exploded: "You call *us* quasi-humans? What does that make you?"

The little monstrosity stood up ramrod-straight. "I am the *real* human, of course! A member of Third Order humanity; you are only First Order—hardly members of the human race, at all!"

Chen Kostov asked deferentially: "May we know your name, sir?"

The gargoyle became more mollified.

"I am Menromon, creator of the Museum of Early Lifeforms, which I shall shortly unveil to the rest of my race. It may help assuage our boredom to watch the primitive lifeforms at play in their own type environments."

Alan queried: "You have *other* earthly life in situations like this?"

Menromon smiled liplessly. "All the way back to the Triassic Period."

Tony challenged: "But we haven't found any earlier life-forms in our explorations of this planet."

The monstrosity stiffened momentarily, then relaxed, grinning.

"Of course not! Each period has its own environment separated from the others by vibratory phasers."

Tony asked: "Where is this planet you've put us on? We cannot identify any of the local star-patterns."

Menromon nodded complacently. "That's hardly surprising. You're on a spiral arm not far from the original Sol—from which we migrated millenia ago—*seven million years after your time.*"

Chen Kostov said: "And you made Alan's and Tony's landing fields, hangars, and the rest of it?"

Menromon waved a wizened arm deprecatingly. "That—and translated your primitive language so that each of you could understand the other. It was elementary for one of my powers."

The little monster became silent, momentarily. It peered appraisingly at the men, then grunted.

"I've underestimated First Order ingenuity. My error was in bringing the Korlash combat boat and Colonel Darzelian here: theirs was the technology which made possible the jamming device. I shall now rectify that mistake."

Menromon raised his arm imperiously.

Hoping he would somehow hear, Alan shouted at the top of his lungs: "856! Stop him!"

Then the gargoyle and his sphere were engulfed in a blinding flood of radiation that sprang out of nowhere. Menromon's hand flew to his eyes.

He shrieked: "You've blinded me!"

In the control room there was suddenly the sensation of immense, seesawing forces. Then—with a *whoosh*—both sphere and gargoyle disappeared.

Chen cried: "856! What happened?"

The sen-boat's metallic voice reverberated through the control room.

"He was about to return us to our own eras. So, I hurled him into the vibratory cage where he'd located the Cretaceous."

Tony hooted with laughter. "You mean you threw him into the period of the Giant Reptiles."

856 chuckled. "Just so."

Chen Kostov explained the Age of the Dinosaurs in simple language for the benefit of Leif and Don Luis. Their eyes grew round with wonder.

Alan looked thoughtful and a little worried. "Is there any chance he can escape?"

The sen-boat's metallic voice replied: "He would need his sphere for that. And I destroyed it as I sent him through the vibratory gate."

The others cheered spontaneously. Then Darzelian glanced at them.

"Menromon spoke of his Museum as though it were still unknown to the rest of his race. For our sakes, I hope so."

Don Luis interposed: "Do you realize we don't even know *where* this Third Order race is?"

Alan said: "From the apparent ease with which he handled different vibratory levels, they could be in another dimension."

The stocky Eurasiatic beckoned the others to follow him. They walked out onto the beach.

For long moments, Alan and Chen gazed out to sea. Then, as with a single thought, at each other.

The lemon-colored man smiled.

"You understand, Alan?"

The Canadian nodded somberly.

"Aye. Something has been lost. But we have gained a whole, new world."

Tony threw his arm over Mackenzie's shoulder, saying softly:

"To make of what we will!" ○

MANUAL OF OPERATIONS

from page 33

Harry lay on the grass and looked up at his ship. He smiled, thought the door closed, took a deep breath—and passed out.

He was in a windowless room and bright lights glared in his eyes. He'd never had such a horrible hangover in his life. God, that was a bad one, he'd dreamed about flying saucers and . . . Harry sat bolt upright.

"Now, now," a soft voice told him. Strong hands pushed him down with a rustle of starched linen.

When he tried to turn his head, a strange thing happened. His head turned but his brain didn't. Then the brain would snap around with a horrible shock and an audible twang. His eyes wouldn't focus, but there were blurs in the room, a flurry of activity, bright lights, noise. Horrors upon horrors.

"Do you speak English?" someone kept demanding. What the hell did they think he spoke? When he didn't answer, they said other weird things. "Parlez-vous Francaise? Sprechen Sie Deutsch?" And growls that Harry wouldn't have believed a human throat could utter. Had that saucer taken him to its home planet? It wasn't a dream, there *had* been a saucer . . .

"Hing-song yin kuo . . ." "Sir, he doesn't respond to . . ." "If you'd get out of the way, Professor . . ." Everyone spoke at once.

"Damn it, say something!" an authoritative voice demanded.

"Hello," Harry replied. He hadn't thought anything could be so loud. Was that horrible noise just Harry Logan trying to talk? "Where am I?"

"You're in the emergency detention—uh, in a guest room in the Pentagon. Do you know what the Pentagon is?" the voice asked him. It seemed to be trying to be friendly and didn't know how. A polite crocodile voice.

Any damn fool knows what the Pentagon is, Harry thought. It hurt too much to answer. Instead, he groaned.

"He seems hurt," another voice said quietly. "Not knowing . . . I mean, General, if it weren't for that *thing* out there I'd say he was a normal human with no detectable injury, but . . ."

"Hell, he's *got* to talk. Fast," the General barked. "You. Sir. Where are you from?"

"Tujunga," Harry tried to say. It didn't come out very well.

"Where's that?"

"Sounds Spanish . . ." "I never heard of any such place . . ." "Habla Usted espanol . . ."

One brittle-dry loud lecture hall voice cut through the renewed babble. "Perhaps it means 'earth' in his language. Most peoples have . . ."

"Crap." The General got shocked silence. "You can spare me the goddam lectures. And since he seems to understand English, we won't need all you goddam civilians. Sergeant, clear this room."

"Yes, sir." There was more commotion, but Harry wasn't interested. Didn't they understand? He needed to die.

"Do you want anything?" the General asked.

Harry opened one eye with an effort. He saw a blue uniform, three stars on the shoulders. Behind the Air Force lieutenant general were two air police with automatic rifles. A doctor in a white coat twisted his hands together. There was no one else in the room, which was bigger than Harry had thought it would be.

"Water," Harry croaked. The doctor moved around and came back with a plastic glass and a drinking straw. Harry gulped it gratefully. "Aspirin. And a double shot of brandy."

The general looked at him closely. "Aspirin? Brandy?" There was a gleam of triumph on the craggy face. "As I thought. There's your goddam alien, doctor. An ordinary earthman with a hangover."

"A hangover and a flying saucer in the Pentagon courtyard," the doctor reminded him. "Really, General Bannister, it would be better to leave him alone for a while. There might be something really wrong with him."

"Yeah, there might. But we haven't got long. I haven't, anyway." He got a crafty look. "Doc, get him in shape and send him to me as quick as you can. I've got to talk to him before the Navy finds him."

"Yes,sir." There was more activity, and Harry was left in the room with the doctor. He gulped aspirin gratefully and asked again for brandy, but nobody brought any.

The hospital gown flapped. The sandal-slippers kept falling off his feet. Harry had never felt more undignified in his life as the air policemen ushered him into the office.

The room overlooked the Pentagon courtyard. Harry's saucer was out there, its unlikely shape gleaming dully, light patterns rippling over the hull. Swarms of uniforms bustled around it, cheered on by more uniforms with gold and

BACKGAMMON
HOW TO
PLAY AND WIN

A GREAT GAME AND A GREAT BOOK FOR BEGINNER EXPERT ALIKE!

Whether you want to play for fun or money or both, this guide will teach all you want to know about backgammon — the most action-packed, exciting and challenging game of skill and chance ever devised.

The game dates back at least 5,000 years and was truly the sport of kings. One emperor wrote a book about it; another is said to have played the game at $15,000 per point. Today, with a resurgence of interest in the game on an international scale, backgammon is being played for fun in living rooms and for money in plush casinos across the globe. And this book will allow you to compete with the best players — and win!

Includes: Nearly 100 easy-to-follow diagrams • rules for playing • back and running game analysis • dice lore, numbers & probabilities • diagram of a complete game, from opening move and reply to end game • tournament play • glossary.

BH438
$1 50

HOLLOWAY HOUSE PUBLISHING CO.
P.O. BOX 69804
LOS ANGELES, CALIFORNIA 90069

Gentlemen: I enclose $________ ☐ cash, ☐ check, ☐ money order, payment in full for books ordered. I understand that if I am not completely satisfied, I may return my order within 10 days for a complete refund. (Add 25c per order to cover postage and handling. California residents add 6% tax. Please allow three weeks for delivery.)

☐ BH438, BACKGAMMON, $1.50

Name____________________
Address____________________
City____________________
State____________Zip________

On sale now at your bookseller or send order above

silver braid on their hats.

General Bannister sat behind a battered mahogany desk that looked like something out of the twenties. Actually it *was* out of the twenties, since this wasn't a general's office. The guards pushed Harry into an oak and leather swivel chair.

"All right," Bannister said. "Let's make this quick. Tell me about *that.*" He jerked a thumb over his shoulder but refused to turn to look.

"Why are there guards pulling me around? What have I done?" Harry asked. "And where are my *clothes* . . ."

"Cut the crap," Bannister said. "You were found unconscious in the Pentagon courtyard in the dead of night. You and *that.* Now where'd you come from, and no shit about Mars. Jayzeus, man, you've got the whole government out of its mind. You bring *that*—" the general still carefully avoided looking out the window—"into Washington without being detected and set it down in the Pentagon courtyard! You've got some explaining to do, son."

"Yeah." Oh Christ, what do I say? Why *did* I come here? "Where do I start?"

"With who you are and where *it* came from."

"My name's Harry, and I don't know where it came from."

"But you can operate it." It wasn't a question. "How?"

"I don't know that either. I don't remember." He thought about it. The machine had done what he thought at it—he tried. He sent out a picture of the ship lifting from the ground. Nothing happened.

Bannister inspected his fingernails as he fought for self control. "What do you want, Harry?" he asked reasonably. The pleasant tone obviously cost him.

Good question, Harry thought. What did he want? The hangover to go away. Peace and quiet. Money. Hey . . .

The door burst open. A Navy Admiral and a hard-eyed civilian stamped in, followed by so many people they couldn't all fit in the room. There were loud voices in the corridor.

"All right, Bannister, we found you," the Admiral growled. "Tried to hide him, didn't you? Just because you were working late last night doesn't mean you own that ship!"

"It flies," Banister protested. "That makes it Air Force."

"The Navy flies too," the admiral said.

"You have both missed the point," the civilian interrupted. He had a voice like a corpse, flat, atonal, and he spoke so softly that you'd think you couldn't hear him, but he was heard. When he spoke, everyone in the room was silent. "That object is obviously of foreign make. Therefore it belongs to us. Not to the services."

"Crap!" General Bannister exploded. "Horse puckey!" shouted the Admiral. Both faced the civilian with determined looks, "What makes you think it's foreign?" Bannister demanded.

"It employs technology well beyond that of any known science. We cannot open the doors. We cannot chip away any of the hull for analysis, or understand the monopole effect it exhibits. Thus I conclude it was not constructed on earth, and it is therefore foreign." There was no triumph in the voice; it merely stated facts, coldly, with precision.

"Yeah, I thought of that," Bannister growled. "That makes it outer space. And *that's* Air Force."

"Navy too," the Admiral said.

"What about NASA?" an air force captain asked.

Bannister and the admiral both swivelled toward the junior man. "Get him out of here!" the General yelled. "Fuck off!" the Admiral added.

"Outer space is nevertheless foreign," the corpse voice said. "Thus I will have to ask you gentlemen to leave the room, or to release this man to me. Come along, sir," he told Harry.

"I'll be damned," Bannister growled. "Sergeant, block that door!"

"Get my marines!" the Admiral snapped.

Harry tried to shrink down into the seat. What had he got himself into? The military people were bad enough, but that civilian—CIA?—terrified him. Harry could imagine being taken into a windowless room and staying there until he had a long beard. Did the CIA operate that way? Logan didn't know, but that man looked like *he* did.

"Stop it!" Harry yelled. Everyone turned to face him. Even the civilian. "I don't belong to any of you! Neither does my ship! It's mine, and I'll decide who I talk to about it." He willed the ship to come to life but nothing happened. Nothing, and he *needed* it . . .

Did he have to be in the seat? No, the doors had closed last night . . .

"Stick with us, Harry. We'll take care of you," General Bannister said soothingly. The admiral moved into place with him, a solid show of military strength. The civilian stared at them coldly.

"Sure," said Harry. "I'm with you, General. You asked me what I want. I want some coffee. A pot of coffee and a bottle of brandy." Harry held his aching head in both hands. "A *big* bottle of brandy, you understand."

"Get the coffee." "Brandy?" "He's nuts." "A wino." "So he's a drunk, what's that?" They all talked at once.

"Will you get me what I asked for?" Harry looked at Bannister.

"Brandy?"

"Yes." Harry tried to look like a drunk in need of a shot. It wasn't hard. He *was* a drunk in need of a shot.

"And you'll tell me how . . ."

"No brandy, no talkee."

Banister nodded. "Sergeant, get that man what he wants. And move."

"But sir, in the Pentagon . . ."

"Goddamit, the Secretary of the Navy keeps brandy," the admiral said. "Chief, get up there and scrounge me some . . ."

A minute later a marine came in with a bottle of Couvoissier. The admiral muttered, "Now we have to wait for the goddam coffee."

Harry felt great. He couldn't remember a time when he'd felt better. He drained the last of his fourth cup and looked at the assembly of people, uniformed and civilian. The coffee had brought him full awake, and there was a warm feeling inside him. The office was still jammed, and although somebody had quieted those out in the corridor Logan knew they were still there. No way out.

"Very well, sir," the cold-eyed civilian said. "you've had your drink. Now perhaps you'll be good enough to give us some explanations?"

"Sure. Just take me to the ship."

The civilian laughed politely. It wasn't a pleasant sound. "Surely you're not so drunk as that. In any event I assure you we aren't."

"Yeah." Harry stood with an effort. It was harder to walk to the window than he'd thought it would be. Shouldn't have had the last one, he thought. But I feel so damn good! Just who do these jokers think they are?

The window was closed and it wasn't obvious how to open it. Maybe it didn't open at all. Harry gulped hard, stood back from the window, and called his ship.

There was a crash and the saucer protruded several feet into the office. Two burly marines, rifles at ready, leaped in front of their admiral with a do or die look. An air policeman ran screaming out into the corridor. General Bannister

Harry knew that he had the world by the tail, if he could only figure out how to keep from falling off. And that wasn't easy, when the rate and direction of spin kept changing.

put his hand on his pistol.

Harry had time to see that the wreckage of the wall had not come plummeting down, but fell, *slowly,* to the floor. The saucer waited for him.

It was faced the wrong way. He couldn't see the air lock at all. And while the marines menaced the ship with their rifles, the civilian sighed, took out a pair of handcuffs, and shouldered his way toward Harry.

Time to go, Harry decided. But how? There was only one way. He leaped at the ship, fell onto the flat part astern, and thought it away from the Pentagon. There was a sudden rush, and Harry was a thousand feet above a toy city of Washington. He looked down, gulped hard, gulped again, but it did no good. He lost the contents of his stomach. Adrenalin flowed. To his horror, Harry was getting cold sober!

BALTIMORE SUN:
FREAK ROBBERY OF LIQUOR STORE
MANIAC BATTERS DOWN WALLS TO STEAL BOOZE!

VANCOUVER SUN:
RCMP IN CONFUSION
DAWSON TIMBER HEIR DEMANDS ACTION
AMERICAN ENGINEER ACCUSED OF SAUCER THEFT

Dawson: *Wealthy timber heir David McClellan insists he will take his case to Ottowa if the Royal Canadian Mounted Police will not give him satisfaction. McClellan, exhausted from a trek through the northern bush country, could not be reached for comment, but it is reliably reported that he has asked the Mounties to track down and recover a stolen flying saucer.*

TOPEKA STAR:
POLICE HOLD ROBBERY SUSPECT
REPEAT OF BALTIMORE LIQUOR STORE BURGLARY
SUSPECT HELD–PLOT SUSPECTED

Topeka, Kansas: *Police are holding George Herndon, liquor store manager, who was found with the contents of the store's cash register in a park near* RADCLIFFE'S FLASK AND BOTTLE. *Herndon, 29, was employed as the chief clerk and manager in the store, and was found dead drunk two blocks from the wrecked building. Herndon told police a wild story of a flying saucer which battered down the rear wall of the store, and explained that he had rescued the night's receipts from the invading saucer—*

A prize ten litre flask of Napoleon brandy was also taken and has not been recovered. Store owners say the rare brandy is almost two hundred years old.

LOS ANGELES TIMES:
BELLE AIRE MILLIONAIRE ESCAPES DEATH
ONE-IN-A-MILLION ACCIDENT

Millionaire playboy Larry Van Cott was nearly killed today when an empty ten litre brandy bottle fell onto his patio from a great height. Van Cott was in the swimming pool only a yard from the point of impact, and was cut by glass flying from the over-sized bottle which totally shattered. FAA officials are investigating.

Harry Logan, stop messing around with that junk and Get A Job! And no more of these mysterious trips either! You came home drunk!"

"Yes, dear." Couldn't she leave him alone? Ever? She had the thousand, wasn't that enough?

He hadn't dared tell her what really happened. He'd been barely sober enough to hide the saucer out in the arroyo. He'd been so clever, hiding his liquor in the ship where Ruth couldn't find it . . .

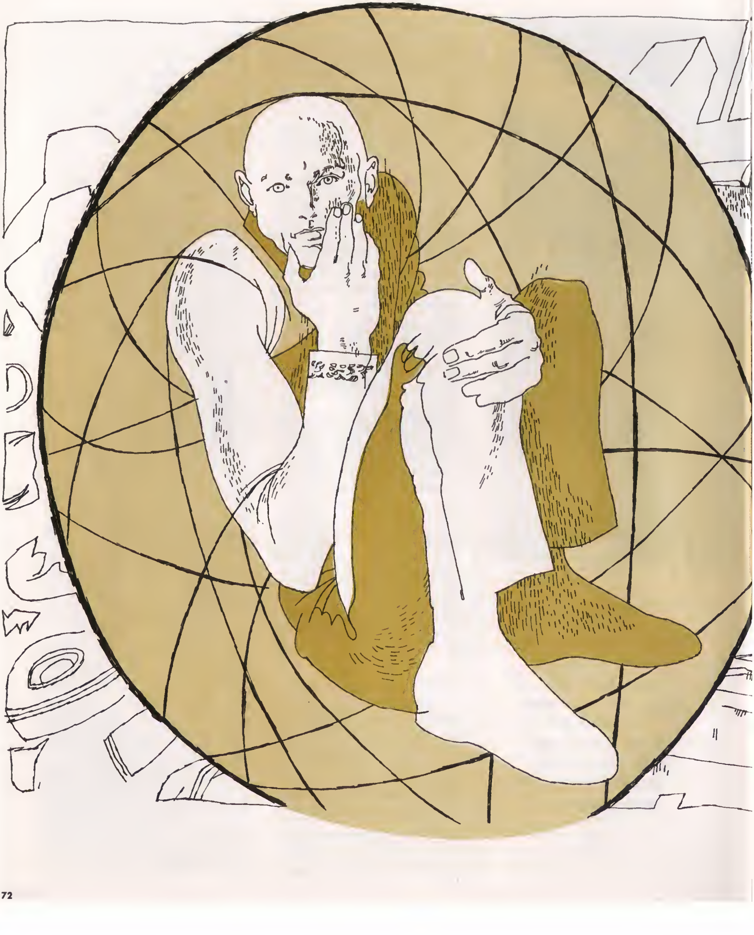
And now the ship wouldn't open the doors for him! "You took all my money. Give me five bucks, please, Ruth. Please."

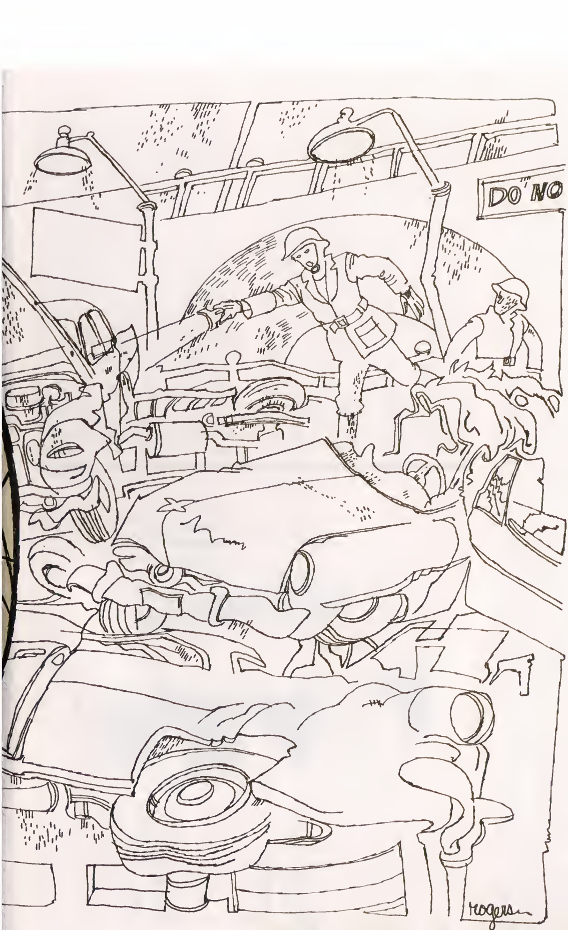
"No! You'd just walk down to the liquor store! I know you, Harry Logan!" She stomped off.

Harry held his aching head. The liquor store was five miles away. The ship only worked when he was drunk. And he didn't have any money . . .

There was a sound of crunching gravel. A car was coming up the long drive from the highway. Harry looked out to see Air Force blue and froze. Good Lord, they'd traced him!

I give up, Harry thought. He went outside as the car drove up. General Bannister climbed out of the back seat of the sedan. There were two majors with him, silver wings gleaming on their chests. Each of them held a bottle of Christian Brothers brandy, and the general was staggering. . . . ○





With travel becoming more and more dangerous, it was only natural that an inventive man would search for a truly safe means of transportation.

SHELL SHOCK

fiction/Donald Franson artist/Monte Rogers

Freeways were more dangerous than combat zones. Dangerous to the point where even a tank might not survive.

The white-on-green freeway sign soared through the gloom overhead, repeated itself in lights on the instrument panel:

SMOG AREA–SWITCH TO ELECTRICITY

Martin Richard, immobilized from head to foot, crooked his right little finger, flicked a switch, and the drone of the Shell changed slightly. He glanced around, moving only his eyes. He could feel cold sweat on his forehead. It was growing darker. He could hardly see the hurtling cars around him.

The young executive squirmed uncomfortably in his tight web, settled down to his usual evening tension. Despite his own advertising claims, he secretly doubted the perfection of all these safety devices.

If just one of them went wrong in an accident, the naders would close in like so many piranhas, ruin his small company. Richard Shells, one-time maker of pressure vehicles for Venus and Jupiter, was now desperately challenging the giants of the automotive industry. *Safety* was the issue that made it possible, giving a chance to smaller companies once again, in a field long dominated by the big few.

The big corporations were the main targets for government interference. They were understandably reluctant to commit themselves to revolutionary change. Yet the prospect wasn't much brighter for the new independents. Besides competition, fair and unfair, there was the pesky government itself, always enforcing new standards of safety; the gadfly consumer groups; and most of all the consumer himself, the long-suffering customer–who would never forgive or forget, if the Shell wasn't all that it should be–he almost said cracked up to be . . .

Up ahead the sea of red tail-lights changed to brighter red as stoplights came on. Trouble. He tensed, prepared to brake. The lights flowed back to dim red and he relaxed. They've got that wrong, he thought, but that's what they started out with, years ago. Was it too late to change now, to yellow for a moving car, red for a stopping one? Another feature for next model, if the government approved.

The Shell was just what its name implied. If the exterior resembled a planetary pressure shell, modern cushion packaging had influenced the interior. Richard sat deep in his form-fitting seat, nearly covered by an intricate web of straps. He had no freedom of movement, but he didn't need it. The controls were at his fingertips. There was no steering wheel or a single projecting lever. Theoretically, he couldn't get hurt in an accident. Theoretically, the *Titanic* was unsinkable . . .

But he had the ultimate in safety cars, if any car was really safe. Designed as armor first, then motorized, it was superior to the others that were cars first, with protection added. He had faith in the Shell, he kept telling himself. He muttered the slogans to himself through tight lips. *You're safe in your Shell. The Shell is not just transportation–it's Security.* That's a good one. *Crawl into your Shell for safety.* Not as catchy as *Button up in your Buick.*

He jiggled an elbow to swerve around a slow cycle right on the white line. They should outlaw them. He flicked his eyes to the right. There was another monkey in a Turtle, changing lanes. He mustn't get too keyed up–it was dangerous. Though semi-automatic controls took some of the concentration out of high-speed driving, it was no fun for him.

Yet he came to the freeway every evening. He didn't have to–he took surface streets to work in the morning–but he felt he had to test the car, take his life in his hands. He felt responsible.

Off the freeway to the right he saw a row of police cars, then a smashed blue sedan, then a squashed orange coupe. Neither were Shells, he saw with mixed feelings.

The inspection department had okayed the Shell. The proving grounds had passed it. His tame naders had tested it and found nothing wanting. But there was always the customer. Try it on the customer–that bad old rule. So here he was, testing it as a customer. Richard put himself in the customer's place, as he buzzed along, courting danger.

He didn't feel very safe.

Maybe he should concentrate on the slogans, make them *feel* safe, as they were in fact. He needed a convincer. Something about an egg–*Safe as an egg in a Shell.* No, that didn't sound right. Eggs and Humpty Dumpty went to-

"Whada-ya mean you don't enjoy smashing the hell out of atoms?"

But those same freeways were still necessary for travel, so the danger simply had to be faced each day.

gether. *A nut in a Shell.* He giggled.

He raised his eyes to an overhead bridge, far ahead of him. A dim figure was running along on top of the wire screen. A roar of static in his police-speaker, a muffled voice, "Pollution kills!" and a ringing bang on the car roof. He winced. The rock-throwers were out in force, but they needn't worry him. The Shell was well protected, no thin-skin like some of the others.

But what if the restraints failed? Permanent restraints, all-body webs, were much more reliable than nerve-wracking explosive air-bags, but they still could break. Other gadgets, many that the government didn't even specify, were vulnerable to mechanical failure in proportion to their complexity. There was nothing he could point to as a weak spot, but he was uneasy just the same. He wished he were home now, eating dinner with his wife.

Suddenly the car ahead bobbed up and down, a dark spot appeared in the road, and the Shell bumped over something. What was it? He'd never know—it was far behind. A victim, maybe?

Would the Shell protect him if he got into a really bad one, say with a truck? The scientist said it would.

Another Turtle loomed in front of him and he elbowed left, narrowly missing the projecting safety bumpers. Now he was in Suicide Lane, not so dangerous as it once was, with the opposing traffic moved a block away, but still worthy of its name.

The way was clear and he stepped up to the maximum. What was the stopping distance at this speed? He could never remember. Should install such a feature on the speedometer, showing the stopping distance for any speed. Make it adjustable for rain and ice. Get the engineers on it tomorrow.

The smog was getting thicker, as he cut through the center of the city. He could barely make out the car ahead. Alongside him on the right was a huge truck and trailer, barreling along at sixty-five. He could see the driver up above him as he passed the cab. He seemed unconcerned, relaxed.

Richard wished he could relax. He kept flicking his eyes to the right, ahead, up to the bridges as he passed under them. His eyes got tired when he couldn't move his head. He was tired all over, and would be glad when . . .

Something was in his lane, and he couldn't turn out.

He swerved left toward the fence, but it was too late. The Shell hit, and his muscles shrieked as the restraints held. Waves of red and black swept over him, a concerto of noise deafened him. Vertigo, as he was rocked back and forth within his webbing. A stalled car, it must have been, but it was a multiple collision by now, and he was rolling over and over. He shut his eyes, helpless in the battle of forces.

This was it—the ultimate test. The phrase "test to destruction" ran through his mind. He blacked out.

When he came to it was quiet, and he was in near-darkness. He was sore and stiff, but he didn't feel any pain that signalled injury. He flicked on the interior lights. The inside of the Shell seemed normal, though slightly at an angle.

Outside, the light, reflected by a mass of junk, didn't penetrate far. Here and there among the unidentifiable lay a yellow fender, an orange tail-gate with a dented *Datson* on it, a gray shred of tire. He must be on the bottom of a pile of wreckage. The Shell seemed uncracked.

He felt pretty good, somehow. No symptoms of shock. First he wanted to collapse the web. He might still be crushed, but there certainly wouldn't be any more deceleration. He moved two fingers in a complex manner, and he was free. He tossed the tangle of straps aside, stretched his arms and legs. He sat there, breathing heavily, realizing more with each moment that he had escaped death and injury. He reached for the microphone. "Hello?"

At once there were voices in his police-speaker. "There's someone still alive in there, chief!" "Hold on—we'll get you out."

Richard said quickly, "I'm okay—I'm in a Shell."

After he said it he realized what a wonderful advertising slogan it would make. *I'm okay—I'm in a Shell* . . .

As he waited for rescue, he amused himself with advertising plans. Now he felt safe—snug as a bug in a . . . no, that was a rival make. He laughed. The Shell had passed the ultimate test. His company would survive.

He was still trapped, but he'd be safe enough until rescued. He wondered whether to call his wife, first decided not to worry her, then reasoned that not calling her would worry her anyway. He dialed home. "I'll be a little late. I'm tied up on the freeway . . ."

They had to tunnel through to him, and it was almost an hour before he emerged, led by a fireman, onto the cluttered pavement. Wreckage was still scattered about, and no traffic moving through yet. He felt unprotected without a car.

He stood around nervously, watching the men and machines working to clear the roadway. A policeman offered to drive him home, and he accepted with thanks.

The patrol car was not a Shell, he noticed as he got in. As it smoothly accelerated, he grew edgy. "Never mind taking me home, officer, just drop me off at the nearest Shell dealer. There's one just past the next off-ramp." He eyed the padded ceiling. This was an older Ford, one of the thin-skins. He kept silent with an effort until the short ride was over.

Picking up a new Shell from the dealer, he drove slowly home without further incident. Coasting up to the curb in front of his house, he had a sudden feeling of tension. When the car stopped, he was reluctant to get out.

He sat there for a few minutes. He released the web, but he couldn't bring himself to move. Finally he blew the horn twice, the old signal.

Eventually his blonde wife appeared, dressed to go out. They were going to a restaurant, he explained. She looked at him strangely, but got in.

Chancing an argument, he insisted on going to a drive-in restaurant, and being served in the car. After a leisurely meal, he took them to a drive-in movie theater.

Martin Richard didn't enjoy the picture. The wild gestures and violent speech of the actors were incomprehensible to him, since he hadn't been following the plot. Viewed through the tough, transparent non-glass of the Shell's windshield, the colorful shifting patterns were utterly alien to his thoughts.

Had the strain of the accident, unnoticed at the time, caused an after-effect, a shock that was disturbing him now? He hoped that was it, that it was only temporary.

Yet it was real enough. As he watched the movie, realizing with dismay that the crescendo of action and sound meant that it was approaching the climax, fear tightened his chest. He looked enviously at his pretty wife, raptly absorbed in the story. His emotion had nothing to do with the emotion portrayed on the screen.

Richard dreaded the end of the picture, when he would have no excuse, short of pleading insanity, not to drive back home, park by the curb, and then . . .

Then he would have to get out of his Shell. ○

THE SPACE THEATRE

from page 47

motors, changing slides and timing house lights. No motion of the image can be controlled—that is usually done through the computer. With a minimum of two touches the operator can control any of over a thousand different functions, as the buttons are arranged in a coordinate system—eight to a side, ten across the bottom, with three rows of eight to supplement.

Needless to say, the whole console is not simple to operate. A small knowledge of computer characteristics is helpful, as well as a quick mind and agile hands. A handful of people in the world have the knowledge to use all the equipment efficiently, and a few others are familiar enough with it to run shows well. As one of the latter (hopefully to be one of the former) I can hardly describe what it feels like to be in control of the universe. The feeling of power one gets must be similar to that of a jet pilot. The STS system is far from perfected, however, and stunts are not appreciated with a million dollars worth of equipment at stake.

The upper projection booth, above the last row of seats at the back of the theater, contains an ordinary 70mm Cinerama-type projector, with room for a large number of special slide projectors. Two floors below this is the OMNIMAX projection room. Here sits a true monster; weighing in at one ton, roughly the size of a Volkswagen Bus, using reels of film four feet across and 340 pounds in bulk, the OMNIMAX is the highlight of any tour.

Since the film takes eighteen minutes to rewind, there are two double-bunked horizontal feed reels. Each reel contains a full forty minutes of OMNIMAX, with lots of black leader spliced in for VOYAGE TO THE OUTER PLANETS. (This allows for lengthy sections when other image projectors are filling the screen, or open sky with stars.) One reel is rewound during the show while the second reel provides the necessary images. The order is then reversed.

The projector mounts a two-story ramp to poke its lens through a soundproof housing into the theater. The film must loop across twenty feet of empty space coming and going. This requires film of extreme strength, and the milar stock used fits the bill perfectly. It is virtually impossible to stretch or tear. Editing is accomplished with an ultrasonic splicer, melding the film ends with a high-frequency impacter.

The production aspects of VOYAGE TO THE OUTER PLANETS are at least as interesting as the production of any major science fiction film. Colin Cantwell, who gained some experience designing and preparing special effects shots for Kubrick's *2001*, put together his model of an interplanetary spaceship of 2348 with conservative accuracy in mind. Obviously powered by an ion drive (though whether the nuclear source is fission or fusion is not indicated—I would guess fission), the spacecraft is cluttered and ugly in the grand NASA-Soyuz-Kubrick tradition. But its ugliness is beautiful in an insectish way. Festooned with thousands of parts from plastic model kits, and even the bulbs from the shuttlecocks of a giant badminton game, Cantwell's five-foot model is a marvel of detail. Artificial gravity in 2348, Cantwell predicts, will still be limited to centrifugal force. His rotating "squirrel cage" sits atop the spacecraft in open view. Its spin is provided by a modified record turntable. Other motorized parts include the telescope forwards of the squirrel cage, which is used for observing the surface details of the planets during the three-year journey.

The second major modeling project involved the construction of the planets—in order, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto. All the planets are made from two plastic hemispheres, fastened together and sealed with polished automobile putty. As the gas giant worlds are noticeably oblate because of their high rate of rotation, special molds had to be made to suit their eccentricities.

They were painted by Graphic Films artist Don Moore, using acrylics and an airbrush. Modeling of surface features provided mountains and craters on Mars and Pluto; the clouds of Earth were detailed to cast a fint shadow in bright light. For Jupiter, the model constructed by astronomer and Jovian scholar Dr. Gerard Kuiper was photographed and the resulting slides were superimposed by projection onto the Graphic Films blank ball. Moore then painted the details from these projections.

A second flat relief landscape of Mars, showing the regions surrounding Nix Olympica and the Great Rift, was made for use in a special telescope shot provided by a customized overhead projector.

As the OMNIMAX camera could not at that time be single-framed for animation, Cantwell and his crew had to rely on a standard 65mm camera with a 160° lens attached. This was then blown up into the OMNIMAX format after filming.

This blow-up, and imperfections in the lens matching of camera to projector, produces loss of image clarity at the extreme edges of the OMNIMAX sequences in VOYAGE. However, of the three hundred plus degrees of picture wrap-around provided, at least two hundred degrees is clear and acceptable—not bad for a film which couldn't be shown in its full-size format until a week before opening. The second feature is more successful in conveying the full OMNIMAX effect because an OMNIMAX camera was used, again with 65mm stock, but in the OMNIMAX ratio with side-fed reels. Further improvements have already been made and the Space Theater's future shows promise to

Heading home, the 600-foot long Delta V deep space exploration vessel passes by Jupiter, most massive of the solar system's planets.

be radically better for picture clarity and lack of distortion.

Audience reaction on entering the theater is almost invariably vertigo. Blue lights turn the dome into a featureless sky, and with cloud projectors the effect is even more disorienting. A snowstorm "white-out" (or being "inside a golf ball," as one visitor phrased it) must produce a similar disorientation. The legally required handrails on the upper seating levels are sheets of inch-thick glass to avoid visual interference. From the moment a visitor enters the theater he is "flying," and this provides much entertainment for immune employees.

The reaction to VOYAGE is generally quiet and thoughtful. Here is disorientation at its utmost—perhaps too much for most people. There is no reference frame, everything drifts without up or down, and the slow approaches and recessions of the planets and the Delta V are accurate but not rapid enough to be kinetically unsettling. Being immersed in Saturn's rings or suspended over the snowy surface of Io draws awed appreciation from the general audience—and enthusiasm from space connoisseurs—but the visual impact of OMNIMAX is best exemplified in GARDEN ISLE.

Roger Tilton Films of San Diego (Producers of HARMONY OF NATURE AND MAN for the Osaka Exposition, and other award-winning films) discovered that the OMNIMAX format requires rigorous discipline. Close shots of human faces become monstrous, and any close-ups must take into account the overall distortion, which across 300° of image area is quite broad. The best use of OMNIMAX is in tremendous vistas, "wide" shots, not unlike Cinerama. And the best effect is achieved when the camera is in constant motion.

GARDEN ISLE provides vistas and motion aplenty. Mounting an OMNIMAX camera ahead of the nose of a helicopter, Tilton's photographer takes the audience on a bird's eye view of Kauai, one of the most beautiful islands in the Hawaiian chain, and the oldest. An ocean approach makes the viewer think he's a seagull, and passing through a volcanic arch (with only five feet of space on each side of the unseen blades) is a magician's trick which never fails to draw gasps. Dropping the audience's view into deep chasms and volcanic cones is a sure means of endearment.

When the visitor leaves, he's slightly giddy, still uncertain of what he's seen, and generally enchanted. He may be critical—San Diegans are basically conservative, and wary of paying two dollars for forty-five minutes of entertainment—but very few are disappointed. The reaction of a Hayden Planetarium employee is more satisfying to me: "You've out-Kubricked Kubrick! It's boggling!"

Would Stanley have filmed *2001* in Omnimax had it been available? Probably not. The peak film length thus far in OMNIMAX, without interruption, is forty-five to fifty minutes, as tandem projectors are unfeasible. The limitations are difficult for a modern film maker with a human-oriented story line to face. This is a new form of motion picture, far more radical than Cinerama, and the challenge is considerable. But the result—with improvements and coming-of-age—are highly satisfying. OMNIMAX is here to stay.

Future programs at the Fleet Space Theater are already in production. After VOYAGE TO THE OUTER PLANETS will be CAPTURE THE SUN, an epic documentary on Sol, with OMNIMAX footage of the June 30th solar eclipse in Africa. The footage was shot close to the site of Richard Leakey's important 1470-man find.

The supplementary production will be STANDING-UP COUNTRY, a tour of the American Mid-West with scenery and spectacle sure to surpass GARDEN ISLE in audience attraction. It must be obvious that the Fleet Space Theater is more than a planetarium. It's the closest thing man now has to Seven Light-Year Boots.

It's a theater unique in the world, the only theater capable of showing its self-financed productions—and it's a planetarium which hopes to make a profit. That in itself is enough to cause a revolution.

It's a dream with solidity. Extravagant and innovative, still troubled by growing pains and "glitches," the Fleet Space Theater is a new standard of comparison. Its career has just begun. And my portion of the dream is not a small one.

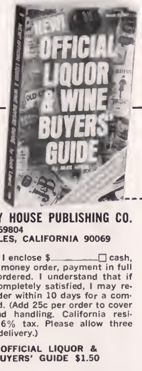
Someday, sometime, the Space Theater must take us all on a tour of the universe, from its beginning to its end in time and space. It must give us tantalizing glimpses of far civilizations, and show us the birth and death of suns. It must show us a star-bow as our hypothetical Seven Light-Year Boots accelerate us close to the speed of light. And then it must show us the Monobloc, and the beginning of the Next Time.

It's the only place available to us today which can do just that. ○

NEW!
OFFICIAL LIQUOR & WINE BUYERS' GUIDE
by Jack Lewis

Author Jack Lewis says that half of what we think we know about buying, drinking and serving liquor and wine is totally false, and the other half is questionable. But one thing is for sure: we're paying too much for what we think we're getting. This guide takes the mystery out of the alcoholic beverage mystique and defines clearly the jargon that has been fooling the public since prohibition. It will teach you the real difference between good and bad liquor — regardless of brand — and how to buy good liquor at the very best price. The Official Liquor and Wine Buyers' Guide is fun to read, an entertaining book and an indispensable reference that ought to be kept within easy reach. You owe it to your pocket book.

BH439
$1 50



HOLLOWAY HOUSE PUBLISHING CO.
P.O. BOX 69804
LOS ANGELES, CALIFORNIA 90069

Gentlemen: I enclose $________ ☐ cash, ☐ check, ☐ money order, payment in full for books ordered. I understand that if I am not completely satisfied, I may return my order within 10 days for a complete refund. (Add 25c per order to cover postage and handling. California residents add 6% tax. Please allow three weeks for delivery.)

☐ BH439, OFFICIAL LIQUOR & WINE BUYERS' GUIDE $1.50

Name________________

Address________________

City________________

State________________ Zip________

GOOD BOOKS FROM HOLLOWAY HOUSE

ON SALE NOW
AT YOUR BOOKSELLER
OR SEND ORDER BELOW

HOLLOWAY HOUSE
PUBLISHING CO.
P.O. 69804
Los Angeles, Calif. 90069

Gentlemen:
I enclose $ ______ ☐ cash, ☐ check, ☐ money order, payment in full for the books ordered below. (Please add 25¢ per order to cover shipping and handling. California residents add 5% tax. Allow three weeks for delivery.)

- ☐ THE NAKED SOUL OF ICEBERG SLIM
- ☐ PIMP
- ☐ TRICK BABY
- ☐ MAMA BLACK WIDOW
- ☐ WHITE MAN'S JUSTICE: BLACK MAN'S GRIEF
- ☐ DOPEFIEND
- ☐ WHORESON
- ☐ BLACK GANGSTER
- ☐ STREET PLAYERS
- ☐ COLD BLACK PREACH'
- ☐ NIGGER BIBLE
- ☐ THE BIG BLACK FIRE
- ☐ STRUGGLE FOR SURVIVAL
- ☐ HOUSE FULL OF BROTHERS
- ☐ GHETTO SKETCHES
- ☐ RADCLIFF: HARLEM HIT
- ☐ HOW TO WIN
- ☐ BACKGAMMON—HOW TO PLAY AND WIN
- ☐ THE GIRL WHO LOVED BLACK
- ☐ TO KILL A BLACK MAN

NAME ____________________

ADDRESS ____________________

CITY ____________________

STATE ____________ ZIP ________

ROBERT BECK

THE NAKED SOUL OF ICEBERG SLIM

Autobiography and Reflections

Don't cry for his soul because he's Black. Though Black is pain, Black is death. Black is despair. He lived as a pimp, dope addict, brutalizer of women—and other Blacks. But he cured himself of the ghetto rot to write—as no other man has. This new book is his most disturbing. Because it has hope, because he searches his artist's soul in a collection of personal essays that are full of passion and razor sharp perception. And when his soul is naked, you see the hurt of a man who feels and cares too much.

BH414—$1.50

OTHER BOOKS:

PIMP

The Story of My Life

Iceberg Slim is the name he used in the ghetto. He was a pimp and this is his story . . . the smells, sounds, fears, the petty triumphs of the pimp.

BH417—$1.50

TRICK BABY

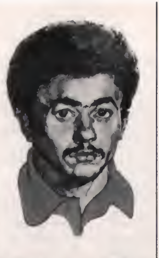
The story of a con man who could have passed in the white world but stayed in the black ghetto of southside Chicago, tormented by his hateful name.

BH416—$1.50

MAMA BLACK WIDOW

This is the incredible story of a tragic homosexual queen and his family, adrift in the dark world of pimpdom and crime and violence, told in the gut idiom of the ghetto.

BH415—$1.50



DONALD GOINES

WHITE MAN'S JUSTICE BLACK MAN'S GRIEF

From personal experience Donald Goines' themes include the black junkie in DOPEFIEND, ghetto prostitution in WHORESON, black organized crime in BLACK GANGSTER and the silky and sordid side of pimping life in STREET PLAYERS. In this, his fifth novel, Goines introduces Chester Hines and takes you inside prison walls. From bust to county jail—with its caste system, beatings and rapes—to the nation's largest state prison, where Chester is convicted for a crime he didn't commit, this is one of the most revealing books ever written about prison life.

BH431—$1.50

OTHER BOOKS:

DOPEFIEND

This shocking novel exposes the dark, despair-ridden, secret world few outsiders know about. **BH419—$1.50**

WHORESON

The novel's hero is a "trick baby," who at age sixteen is a full-fledged pimp—handsome, cold-blooded and ruthless.

BH421—$1.50

BLACK GANGSTER

The startling rise of a black "godfather," from teenage gang-lord to powerful mobster!

BH422—$1.50

STREET PLAYERS

The gutsy account of Earl the Black Pearl. He wears silk suits, clawed his way to the top and fights like hell to stay there.

BH430—$1.50

ROBERT deCOY

COLD BLACK PREACH'

A time bomb of a book that takes on the Black Preaching Establishment. Tracing the Black church in America from its origin as an instrument of oppression in the hands of the slave owners, deCoy fires a powerful broadside at the "Holy Man and his Holy Pole." The Black preacher is still Whitey's flunky, a "head nigger" hired to keep peace between the white exploiters and their Black victims. In a devastating section called "Saving Graces," deCoy exposes the hustles used by the Black Preach' to line his own pockets and keep his "flock" submissive. An unusual and powerful book you'll want to read!

BH420—$1.50

OTHER BOOKS:

NIGGER BIBLE

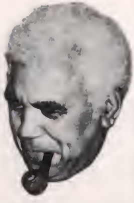
Dick Gregory's preface says "Robert H. deCoy is not only one of the literary giants of our time, but he has dared . . . to find and reveal the spiritual truths of being Black." This is undoubtedly one of the most daring books of the decade!

BH423—$1.50

THE BIG BLACK FIRE

The biography of Jack Johnson—the first Negro Heavyweight Champion of the World—is the story of Civil Rights in the first half of the twentieth century. This book cuts through the lies that have been circulated about him because he refused to be an Uncle Tom. Contains material never before in print!

HH166—95¢



JAMES JONES

STRUGGLE FOR SURVIVAL

Since his university days in the 30's, James M. Jones has been prying open doors long closed to Blacks. Whether you're an advocate of violence or of passive resistance, Mr. Jones has something meaningful to say to you. He was instrumental in seating the first Black president at Howard University; he confronted labor leaders and forced unions to accept Black members; and as president of the American Advancement League he has been responsible for the job placement of more than five thousand Black members. He's not a follower, he's a leader. He's been fighting the civil rights battle all his life.

BH428—$1.50

OTHER BOOKS THAT MAY BE OF INTEREST

HOW TO WIN

by Mike Goodman

This book gives solid advice on how you can become a tough player and helps tilt the odds more in your direction. Author Mike Goodman is a professional gambler and pit boss at one of the largest casinos. He's seen it all and he knows how it works and he lays it all on the line in this winning book that gives you the facts on blackjack, poker, dice, horse racing, roulette . . . all sprinkled liberally with amusing anecdotes about gamblers and gambling.

BH418—$1.50

JON PALMER

HOUSE FULL OF BROTHERS

Steven Walls blew into Los Angeles from Omaha seeking his California Dream: membership in a Black fraternity, an education, a prestigious job—and a white woman. That's what it took to make it in the white man's world, Steven thought. And that's exactly what he got—until he was booked for a bank robbery and murder he didn't commit and walls came tumbling down. In this, his first novel, author Jon Palmer holds nothing back as he deftly probes black fraternities and the manners and mores of "white-conscious" middleclass Blacks. And he does so incisively.

BH429—$1.50

OTHER BOOKS THAT MAY BE OF INTEREST

BACKGAMMON—HOW TO PLAY AND WIN

by Donald Carter

Here's the best book yet on the art and fun of playing the most action-packed, exciting and challenging game of skill and chance ever devised. Author Donald Carter provides nearly 100 lavish yet easy-to-follow diagrams, including a complete game diagrammed step by step from opening move and reply to end game. And along with all the rules for playing at your fingertips, you also have game analysis, lore and history.

BH438—$1.50

ODIE HAWKINS

GHETTO SKETCHES

Odie Hawkins, a native of the ghettos of Chicago, paints pictures of life and death in the Inner City in this, his first novel. GHETTO SKETCHES teems with the sights, sounds and smells of the "main stem" . . . the rat and roach infested tenements, the jazz-filled freedom of Saturday night, the soulful peace of Sunday morning. Everything that makes ghetto life what it is. Hawkins has filled his canvas with unforgettable people, not just the dopefiends, pimps, hustlers and other victims of exploitation, but the plain working people, indomitable survivors of injustice, and the young militants who are daily reshaping the Black Experience. A powerful indictment!

BH425—$1.50

OTHER BOOKS THAT MAY BE OF INTEREST

THE GIRL WHO LOVED BLACK

by Leo Guild

Sandy Hyland (a pseudonym) lives today in Hollywood, a professional singer and film actress. A beautiful white girl, Sandy was under contract to one of the largest motion picture studios in Hollywood. She was also in love with a black man—a pimp. The studio didn't like it. Sandy was subjected to every pressure the studio could exert to break up this affair. Here's a behind-the-scenes view of Hollywood at its ugliest!

BH433—$1.50

ROOSEVELT MALLORY

RADCLIFF: HARLEM HIT

Radcliff is the code name for a professional hit-man whose ruthlessness and expertise has earned him the title "Hit-Master" in international circles. His service: killing underworld figures for other underworld figures. They don't realize that he's killing them off one by one. It's Radcliff's deadly little game, one he devised in the jungles of Vietnam. And the end result is bread. Radcliff's women and silky off-duty life calls for lots of bread. Follow the frantic adventures of Radcliff in this new action-packed series. It's a trip you can't refuse!

BH435—$1.50

OTHER BOOKS THAT MAY BE OF INTEREST

TO KILL A BLACK MAN

by Louis Lomax

Author Louis Lomax was a close friend to both Malcolm X and Martin Luther King, Jr. And in this startling biography of both men, he includes the things Malcolm X did not tell in his autobiography; he dissects Malcolm's famous letters. Lomax writes with the sympathy and understanding of a friend, but he is also quick to point out the shortcomings of both Malcolm X and Martin Luther King, Jr.

HH160—95¢

TOWER OF BABBLE

from page 63

abominably, Kellerman decided that it made sense to go first to the tent. He had some night equipment there, although he had not intended to do any hunting after dark, because of the danger involved.

By now the fern clump hiding the tent was in sight, so Kellerman hurried toward it. Just as he parted the first tall, rough-stemmed fronds, the mind blast came again. This time the pain was excruciating. He fell to his knees, head wrapped in his arms, as if to ward off physical blows. The pain–agony–suffering–discomfort–ache–anguish–torment–torture.

Then it was gone, but this time Kellerman was left with even more of a residue than from the first attack.

"Awful," he muttered. "Horrible–terrible–excruciating–agonizing–" Then he pulled himself up sharply. He was still on his knees before the tent flap. Kellerman crawled into the tent, sealing it after him. Pulling himself erect by holding to the tentpole, he fumbled for the medi-kit. Before he had undertaken this assignment, Kellerman consulted with the medi-psychs at Time Travel, and they had come to certain conclusions. One was that he might need a strong hypnotic to try to counteract whatever mind-bending experience he might encounter. The medi-kit was well stocked with hypnotics, narcotics, and mind-altering hallucinogens. One of the shrinks had even put in a book of incantations, on the theory that such things seemed to work for primitives, and nothing could be more primitive than dinos.

"Medicine," Kellerman said. "Drug–panacea–elixir–remedy–cure–medicament–" Then, "No!" He gulped a pill. "I won't let it affect me." He turned on a small hallucibox to reinforce the medicine he'd swallowed.

Then Kellerman drifted mentally, influenced by the medication and the electronic sensations. He didn't know whether the combination effectively blocked the external force which was affecting his mind, or whether that unknown factor was gone. Finally he slept.

When morning came, Kellerman played back the auto-recordings, both video and audio, that gave him a record of his own actions from the time he'd blundered into the tent until now. There was nothing in the sound, no clue in the pictures of himself, to give help in solving the basic problem.

Now Kellerman had to decide what to do today. He was frankly afraid. The two short times yesterday when he'd been subjected to the force, whatever it was, unnerved him. Kellerman had been in plenty of tight spots in his time. His personality thrived on, sought out, danger. This, though, was particularly frightening because it could produce insanity, or whatever the mental condition was which he'd seen in Tryon. To be reduced to a gibbering idiot was not a pleasant prospect. Should he give up, escape to the time booth and the 21st Century? It was a temptation.

Never a quitter, though, Kellerman decided to try one more outdoor expedition, with safeguards. First he brought out a reel of fine, ultra-tough cord. This would be his safety line. He fastened it to an automatically timed reel, and clipped the free end to his belt. The timer was set for one hour, with a manual override if he needed to be rescued sooner and still was able to work the controls. If his mind was completely paralyzed by the force out there, he'd be reeled in like a fish when the timer went off.

Then he recorded a Mayday message, tied it into the timer, and keyed it for reception at Time Travel Tower in the future.

Kellerman gulped a mild sedative, not enough to impair his functioning, but just enough to take the edge off the mental jolt he might receive again today. As he prepared to leave the tent, he decided to take one other thing with him. Kellerman tucked the grimoire into a pocket. Now, with the book of spells with him, he was ready for anything!

There was a camera built into his protective helmet, so that anything he saw would be recorded and beamed to the labs in the 21st Century.

Leaving the tent, Kellerman carried the reel of cord to the time machine booth and secured it inside. If anything happened, he'd be pulled back into the booth. Then he set the controls for the trip ahead in time, tied them into the auto-timer, and left the booth. He'd done everything to protect himself that he could do. If anything happened, he'd arrive back in the Time Travel Tower, even if he were mentally disoriented.

Kellerman headed for the spot where he'd experienced the mind blast yesterday. He scouted carefully. There were dinos in the distance, and he heard the thunder of their feet, felt the vibrations through the soles of his boots. But his mind was fine, and he sighted nothing that could account for the terrifying experience of yesterday. He searched for nearly an hour, so he reset the timer. No point in being hauled back in too soon. He kept working back and forth, for he was limited by the length of his life line. At one stage Kellerman was tempted to unclip it from his belt; but then he remembered the mind-bending pain and opted for safety.

At the end of his tether, he swung far around to the east, over a relatively clear plain. The safety cord precluded several paths; for he had to work the cord over obstacles, or back track to get around clumps of fern.

Maybe this was the wrong time of day. He might go back to base and try again at approximately the time he'd been hit yesterday.

As he neared the tent, in almost the identical spot as before, the pain struck. Even though Kellerman was prepared for it this time, it was bad. He fumbled more medication from a vial he carried, and gulped it down as the sensation–feeling–sense–impression–awareness–

"No! I won't allow–let–No!" He stopped and forced his mind to obey him. Exerting conscious control helped. The pain eased off until it was bearable, and if Kellerman kept a tight rein on his thoughts, they didn't go wild.

Now he had to find the culprit. Gritting his teeth with the effort to keep from going berserk, he inched forward, the camera recording all he looked at, the sound track picking up all he heard. Weaving his head back and forth, he found it acted as a directional antenna. The brain signals intensified on a direct line to the northeast and increased in power as he moved forward, until he was nearly frantic with pain.

He homed in on an unusually thick clump of shoulder-high ferns, their leafy fronds rippling in the breeze–wind–draught–air flow– With a supreme effort, Kellerman wrenched his mind away from the babble of words. The pain in his head was excruciating now; but he knew that he must be only feet away from discovering what was causing this mental confusion – unreliability – unsoundness–Aching head! But he plowed into the ferns, brushing aside their feathery fronds, crushing them into green pulp beneath his boots. The pain was all encompassing now, and words poured through his head in an appalling stream–river–flood–spate–

And there it was, on the ground, so small he almost overlooked it. It was a tiny reptile, four-legged, ungainly, with its oversized, squarish head. It was a species that he had not seen in his hypno-training at TTT; but there was no question in Kellerman's mind. This was the culprit.

As he stood there, swaying, nauseous, ready to collapse, the creature sank down on its haunches, seemed to tense its muscles, and Kellerman realized that it was going to spring at him. At the same moment there was such a telepathic blast that he howled in anguish, fumbled for something with which to protect himself, missed the stunner, felt his hand close on some object in his pocket—then—

Slowly Kellerman regained awareness. He was lying down on something firm, yet comfortable. His fingers explored surreptitiously, encountered cloth, signalled his brain that he was lying on a bed. Forcing his eyes open, Kellerman looked at an unfamiliar face above a white uniform coat.

"Mr. Kellerman, are you all right?"

"I—I think so." He looked around, saw another man, this one in street clothes. "I'm back in the Time Travel Tower?"

"Back. And apparently unscathed."

Now the other man came forward. "I'll take over, doctor." To Kellerman, "I'm Soames."

"Soames. I remember—you questioned Tryon." Soames nodded. "How did I escape?"

"You don't remember?" the doctor cut in.

"I was—I found it—a little reptile with a big head."

"Apparently a telepathic one. Most unusual."

"And the pain and mind bending were so bad—I—I remember that I had something in my hand—I intended to try to hit the nasty little beastie with it."

"Temporary amnesia—not uncommon in such cases," the doctor explained. "Your memory will probably return soon."

Soames turned to the doctor. "Will it be all right for Mr. Kellerman to see the projection now? It might trigger his memory."

"If he feels up to it. Luckily there are none of the symptoms we saw in the other three men."

"Mr. Franciscus wants to be in on this. He's very pleased that you succeeded, Mr. Kellerman."

"I'm sure he is." Drily. "But no more pleased than I am."

A nurse helped Kellerman dress and put him in a wheel-chair, over his protest. "Doctor's orders, sir." Then he was taken to the private elevator leading to the penthouse.

Franciscus was all smiles, his chins quivering as he leaned forward to clasp Kellerman's hand. "Successful, Kellerman. You solved the problem." His eyes disappeared in folds of flesh as he laughed. "And what a solution! In this 21st Century, it's nigh incredible."

"I don't remember—temporary amnesia the medic says."

"Just watch." Franciscus was like a child with a new toy as he touched the projector to life, and Kellerman was back in the Cretaceous. It was as if he were creeping up on the telepathic dino, for the projection was built from the picture made by the camera he'd had in his helmet. It was so real that Kellerman winced, expecting momentarily to have his mind blasted out of his head.

The fern fronds parted, and there sat the tiny, big-headed reptile, tensed, ready to spring at him. In the next moment, some object hurtled into the line of sight, right at the tiny dino.

"I remember, now," Kellerman shouted. "That grimoire—the volume of spells that some joker from the medipsych packed for me. That's what I tossed at that telepath."

"But how did you know that of all the weapons you carried, only that book of spells," and here Franciscus grimaced, offended at the non-scientific solution, "would stop the beast?"

Kellerman grinned. No point in telling Franciscus he'd earned his exorbitant fee quite by accident, that his mind was so warped by the beast that he'd not even thought of his stunner, but had grabbed blindly and had gotten his hand on this book by chance. So, with just the right supercilious touch to his voice, he said, "When I realized that what I was up against was a thesaurus, I did the logical thing—I threw the book at it." O

"Better to strike a light than curse the darkness, ay Cap'n?"

HARLAN ELLISON

from page 37

parchment. The mummy touches it and there's a little bit of decayed bandage hanging from his finger. I saw it and thought of a dusty finger leaving a mark of dirt on a parchment, and then I thought of that kind of hand touching a stainless steel wall in the future. Now that was all I had to write the Jack the Ripper story. It was a matter of images, of tones, of textures.

VERTEX: If I may say so, that sounds very unusual to me. Do you know of any other writers who work that way?

ELLISON: From what I gather, few do. When I'm in the preliminary stages of a story and try to explain to them, "Well, this is about melting orange that turns into blue ice with a tyrannosaur in it," they look at me as if I was crazy. Then they say, "What in the hell are you talking about?" But when I write the story it all becomes perfectly clear.

VERTEX: Although you are identified closely with the field of sf, much of your best work is not sf. What is the reason for this?

ELLISON: Maybe it's because I'm a *writer* who happens to write science fiction. And I don't really write sf; I resent being pilloried for not writing sf, because I never claimed to; I'm a fantasist. But getting back to the question, you're right. Much of my best work is not sf. "The Resurgence of Miss Ankle-Strap Wedgie," a very long novella which appeared in *Love Ain't Nothing But Sex Misspelled,* capsulizes much of my best writing. My new book, *Deathbird Stories* which is coming out in February from Harper & Row, is clearly fantasy and will not be marketed as sf; it will be marketed as a mainstream book.

VERTEX: Of your non-sf work, I find *Memos From Purgatory* to be the most fascinating. What was it about the kid gangs of the fifties that made you want to really go out of your way to gather material about them? In the book itself you never quite explain why you decided to run with them.

ELLISON: It was a series of events. When my father died in 1949 my mother and I moved to a resident hotel in Cleveland. One day in the newsstand downstairs I saw a book called *Duke* by Hal Ellson. His name was so similar to mine that I bought it and read it. The first really good novel about life in the streets, *Duke* was about black kids. Then I read Ellson's second book, *Tomboy,* and was very impressed with it.

The second thing, when I first got to New York—hadn't been there more than an hour—I was beaten up by a street gang for no apparent reason. They were walking arm-in-arm down the street and forcing everybody in the gutters. They saw me there watching them and they thought I was a little kid and they could punch the shit out of me. Which they did.

VERTEX: And what was it about getting the shit kicked out of you that made you want to run with kid gangs?

ELLISON: I was really fascinated by the encounter. I mean, it was painful and horrifying, but it was fascinating. I guess that was a first budding awareness of my social consciousness; I was concerned with things going on around me and I wanted to write about them. So I went down to Brooklyn, joined a kid gang, and ran with them for about ten weeks to get some background. And then years later I wrote the autobiographical account, *Memos From Purgatory.* That kind of social involvement has stayed with my work on up to the latest things. "Silent in Gehenna" is about campus revolution and the nature of revolutionary thought.

> ***"I think that in the next ten years we will see the emergence of writers who care more deeply about people than they do about the problem."***

VERTEX: It seems to me that one basic characteristic of your work is the search of each individual to find a personal justice or fulfillment. I'm thinking of your stories about kid gangs, "Delusion for a Dragon Slayer," and "Pretty Maggie Moneyeyes." Why have you selected that as one of your themes?

ELLISON: I think it stems from my own feelings of having been used badly as a child. There were too many lumps taken for it to have been pure paranoia. But more than that, particularly in "Delusion for a Dragon Slayer," a theme in my work is that you can live in your noblest dreams, but only if you are worthy of them. I am very high on personal ethics. Morality I don't give a shit about, but ethically I try to be very careful about what I do.

VERTEX: Aren't you ethical about revenge too? I mean, I've seen you really get back at people you think have messed you over.

ELLISON: Again, it's my childhood. I was very badly treated by large groups of kids and I was too small to defend myself. And revenge just burned in me, burned in my soul! I've spent many years getting back at people, even people who did things to me as a child.

VERTEX: But you select your victims very carefully.

ELLISON: Oh yeah, yeah! It's not a random thing; I have to be grievously wounded. And I will stop at nothing. There are people walking around right now who I will *get!* Even if it takes me the rest of my life and costs me thousands and thousands of dollars, well over what the revenge is worth, I will do it.

VERTEX: Then you don't think the universe balances out.

ELLISON: This "leave them to heaven" number? I think that's bullshit. Heaven doesn't know. You got to get your comeuppance on this planet. People always say that my third wife, a really evil, really dreadful human being, will get hers. Fuck! She just married a movie star! She's still swinging. That's because people who are really *good* at being evil are clever enough to escape their just rewards. And so they must be worked at in terms of revenge.

VERTEX: That's a pretty violent attitude.

ELLISON: I abhor violence, yet I am a violent man. I emerged from a childhood and young adulthood of violence, and these have had a lasting effect on me and my work. I am as fascinated by intellectual and verbal violence as I am by physical violence. It is in moments of violence that we have confrontation, that we find out what we believe in, whether we have soul or spirit. They are pivotal points in our lives.

VERTEX: Exactly how do moments of violence accomplish this?

ELLISON: Well, my philosophy has always been that people never call themselves by their correct names; people who are phonies never think of themselves as phonies. I'm probably a phony; I never think of myself as a phony. And at some point in your life the situation allows for no justifications or rationalizations. You are stuck with knowing exactly what you are; you suddenly learn your real

/turn to page 96

THE MAGIC MACHINE

from page 39

could cast a spell on me—uh, for me."

"Why, certainly, Mr. Katz," Rinaldi said, still smiling. "What kind of spell are you interested in?"

Katz surveyed the room, could find nothing even slightly peculiar about it, then eyed Rinaldi for several seconds and got the same result.

"Excuse me," he said carefully, "but are you really a sorcerer?"

"Why, no, of course not," Rinaldi replied. "Very few people nowadays are sorcerers, or, to be more precise, witches. Witchcraft involves incredible control and powerful mental faculties, as well as certain knowledge. I merely deal in witchcraft, I don't practice it."

What kind of racket is this? Katz thought. "Well, then," he said, a hint of irritation creeping into his voice, "who does?"

Rinaldi stood up, the same smile still plastered across his face. Once he had risen, Katz could see that he was a huge man, well over six feet tall. "Follow me," he said, "and I'll show you." He walked to the door at the back of the room and opened it.

"Well, I don't know—" Katz began, his voice shaking.

"Don't worry about it. There's nothing in here to harm you." Rinaldi disappeared through the doorway.

Katz rose and crept through the doorway cautiously—and found himself facing a wall of flashing lights.

Rinaldi's toothy smile became tight-lipped. "This is the latest Model J23KI; this is what casts all the spells."

"A computer? But surely it can't perform *magic?*"

"But of course it does. This is an automated age, Mr. Katz. One must keep up with the times. The days of wizards in jeweled capes and pointed hats are long gone. Everything else is run by computer; why not witchcraft as well?"

"Well, I don't know—"

"Mr. Katz, don't you see? Do you have any idea how inefficient human sorcerers were, how many spells have backfired because of human error? With the J23KI, we've made witchcraft into a genuine *science!*"

Katz snorted. "I'd hesitate to call it a science."

"But it is, Mr. Katz, it is. All the spells and incantations known to man have been stored in J23KI's memory drums, and any one of those spells can be recalled at will by the insertion of a punch card. Not only that, but the computer actually recites the spells itself."

"I'd have to hear it to believe it," Katz said stubbornly.

By this time, Rinaldi's smile had become a determined frown. "Then let's not waste any time. Come back into the office with me and I'll arrange for a spell for you right away."

"Now then," Rinaldi said when they were seated once more, "specifically what kind of spell are you looking for?"

Katz blushed. "Hey, wait. Before we go on: how much is this going to cost me?"

"One thousand dollars for each spell, payable in advance. But I guarantee satisfaction. If the spell is undesirable in any way, we'll remove it from you, and you'll have your money refunded, no questions asked. Fair enough?"

"Well, it certainly—"

"Come now, Mr. Katz," Rinaldi said impatiently. "Do you want a spell or don't you?"

Katz sighed and got out his checkbook. He wrote out a check and handed it to the magic dealer.

"Okay, Mr. Katz," Rinaldi said, pocketing the check. "You have a problem or you wouldn't be here. What can the J23KI unit do for you?"

The blood rushed once more to Katz' face. "Well, you see, uh, I've never been very attractive to women—"

Rinaldi interrupted. "You're shy and lonely and frustrated and you want a spell that will give you so much charm that women will chase after you like dogs in heat."

Katz' face grew still redder. "Why yes, that's basically it. How did you—"

Rinaldi's smile was almost weary this time. "It's our most common request, Mr. Katz, and no one yet has asked for a refund on such a spell. Just sit right there and I'll have the computer take care of it right away."

He stood up, took a ring of keys from his pocket, and strode over to one of the filing cabinets. He selected a key, unlocked the cabinet with it, and pulled the drawer out. For a moment he moved his hand back and forth above the drawer; then he reached in and pulled out a punch card. "Spell number eight; one of the more difficult ones." He closed the cabinet and locked it carefully, disappeared into the computer room for a moment, then came back in and seated himself at his desk once more. "Take a look at the floor," he said.

Katz turned his head and saw a section of the floor suddenly light up in the shape of a five-pointed star.

"A pentacle," Rinaldi said. "All that's really necessary for casting spells other than the correct words and phrases."

Katz heard a loud click. A low, harsh voice began droning, "In the name of Baal, and in the unholy name—"

"That's the computer," Rinaldi said. "It's reciting your spell. You might as well relax; it'll take close to ten minutes. This is a rather long spell."

"Can you make it speak any softer?" Katz asked.

"Sorry, it's at minimum volume right now for an efficient spell."

"After it's over—the spell, I mean. Will I be more attractive immediately?"

"Immediately. You'll notice the change even before you walk out of this office."

"Are you sure nothing can go wrong?"

Rinaldi shook his head and his oversize grin reappeared. "Absolutely nothing can happen. You see, all the errors that human witches used to make have been totally eliminated by the use of the J23KI computer. Spells are very tricky things, Mr. Katz. Make the slightest mistake and bad things happen."

". . . gather thy power and focus it on this man . . ." The computer continued reciting the spell in its raspy, singsong voice.

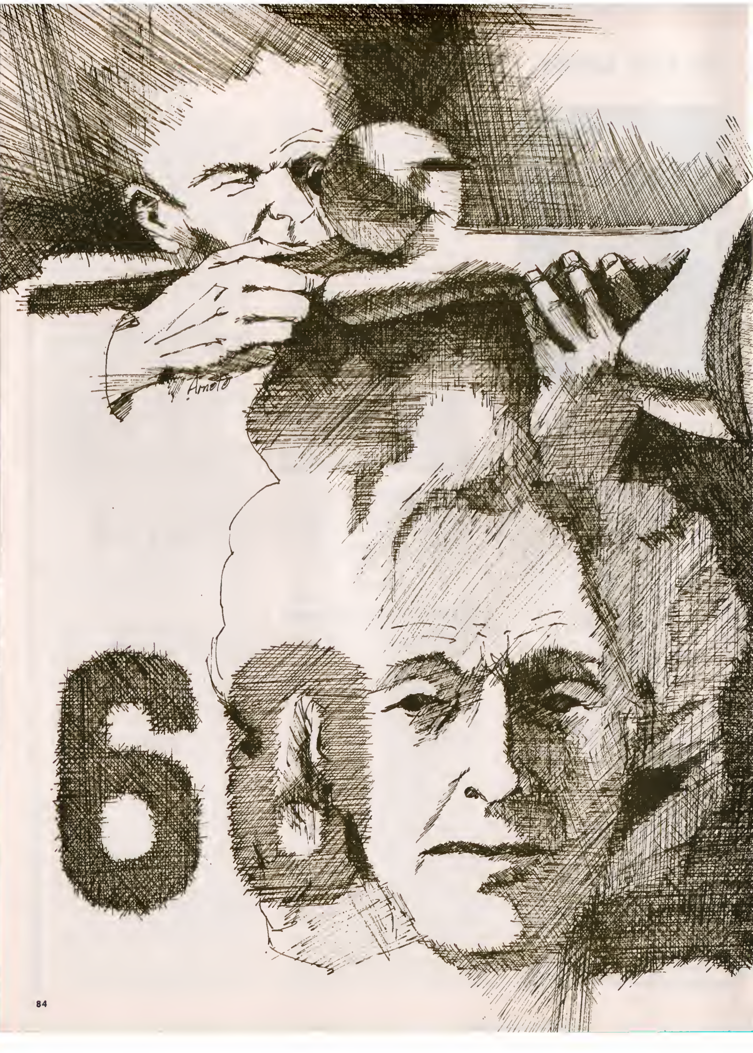
"What kind of mistakes did the sorcerers make?" Katz asked.

"Well, if they mispronounced a word, any word, then not only was that particular spell nullified, but any other future spells of the same sort placed on that person were, too. But the worst thing a witch could do was to stop reciting a spell in the middle."

"What happened then?"

"Then whatever effect the spell was supposed to have was reversed," Rinaldi said.

At that moment the world's largest power blackout hit the city. O


Amato
60

No matter how far he ran, his past
pursued him, haunted him, demanded
his death as payment for his life
of despotic terror.

DEEPER THAN DEATH

fiction/Steven Utley

artist/Stevan Arnold

No matter how many times he killed that ghost, no matter how many planets he tried to hide on, he could not shake the cold dead hand of his horrible past actions.

When Anders got to the edge of the slime pool and had his worst fears about his attacker confirmed, he did not know what to say for a moment. He knew that he would have to say something, of course–he had done so, after all, on all of the preceding occasions–but there was no horror or astonishment left in him now, only a dull, resigned weariness. Finally, he said, "I really have to admire your determination and guts, ma'am," and laughed a harsh, strained laugh that he instantly regretted. He looked away from his victim for a second before forcing himself to continue.

"Land, Rheinscheld–all of those *men*–gave up on me years ago. It was quite a severe blow to my ego at the time, because I was certain that they would want me badly enough to chase me all along the Rim." Anders made a low, mocking bow toward the woman and hoped, foolishly, that she did not notice the tremor in his voice. "I take consolation in the thought that you hate me enough to have hounded me this far. You have my thanks and my congratulations."

He paused, waiting. The woman said nothing. She was sunk up to her armpits in viscid slime and clung with white, bloodless fingers to the edge of the overhanging rocky shelf upon which the man stood. She had knocked him and his power-glider out of the air and had then come stalking him through the ridge-cut, pool-pocked forest when the fox turned on the hound and fired from ambush, shearing away the stone beneath her feet. A desperate mid-air twist had enabled her to grab the shelf's ragged new edge, but she was helpless, and they both knew it.

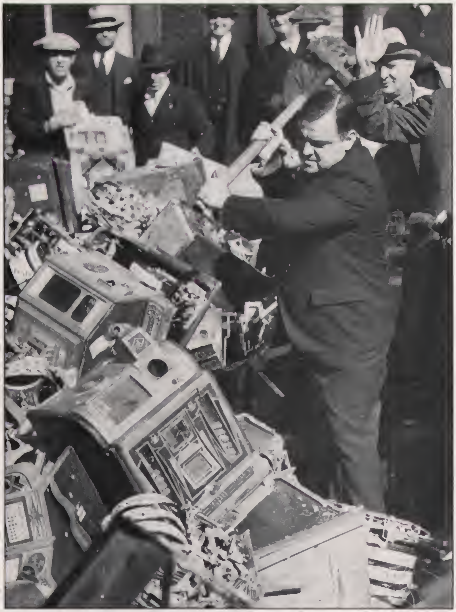
Anders sighed and centered the muzzle of his traser rifle on her impassive, familiar face. "I wish," he said, "that you would stay dead whenever I kill you. Or that you were at least a real ghost, with no more substance than a dream–I could ignore you then, just as I did the first time you were alive. I have more important things to do in my five hundred years than blow holes through you all of the time."

He was about to say more but stiffened suddenly and brought the rifle up as a loud crashing noise heralded the approach of some large beast. A few moments later, an eighteen-foot-long megalosauroid pushed its way through the foilage about twenty yards to the left of the man and woman. It lurched to a nervous, bobbing halt at the edge of the stone-rimmed pool, sniffed the thick, fetid air and swung its toad-like head around to fix a glistening green eye on the human beings. With a sound that was half shriek and half hiss, it turned, its stiff, heavy tail swinging behind it like a boom, and took a step in their direction.

Then Anders fired. The best careened sideways as its deep, narrow chest caved in. The burnt lungs and blackened heart exploded through the leathery back in a spray of blood and bone fragments. The creature toppled over the edge of the shelf into the pool and went under immediately.

Anders turned back to the woman and drew a bead on the bridge of her nose. "I should have just walked away and left

turn to page 98



1938: N.Y. Mayor La Guardia smashes illegal slot machines . . . while players cheer.

Experience history alive with verve and color to stimulate your understanding and sharpen your vision of man and his adventure on earth. Share Lord Byron's vision of Greece. Travel the western badlands with Jesse James. Open an Egyptian tomb. Charge up San Juan hill. Walk the streets of Colonial America or have dinner with an Indian tribe. Each issue of Mankind brings you the delight of fresh, bold, unexpected ideas, beautifully illustrated and superbly written. Join Mankind now. Send in your subscription today.

MANKIND MAGAZINE
8060 MELROSE AVENUE
LOS ANGELES, CALIFORNIA 90046

Enclosed is $5 ☐ cash, ☐ check, ☐ money order for my one-year subscription (6-issues) to Mankind magazine. However, before entering my subscription, rush me my free trial copy for approval. My $5 will be refunded in full at once if I am not delighted with this first free trial issue of Mankind. Either way I keep my free copy and have nothing to lose.

NAME

ADDRESS

CITY

STATE ZIP

5901

FREE

A BEAUTIFUL MAGAZINE OF HISTORY FOR PEOPLE WHO CARE

Join Mankind

NIGHT WATCH

from page 7

As to that section around the airport, it's the foreign quarter; we don't have anything to do with that."

Howard slowed down a little and Erika's bones sighed in relief. The outskirts of the city were ramshackle and neglected looking also, but here and there were vegetable gardens, and even goats staked out on grassy plots, and what really zonked her, men and women attacking the concrete and asphalt with sledge hammers and big chisels, apparently trying to get down to the earth so they could plant something. And then, with shocking suddenness, there was—nothing.

Her reflections were interrupted by a chuck-will's-widow, saying his name over and over in the frosty light that had just appeared outside the cave as the clouds rolled away from the moon. She fingered the captured laser rifle by her side and looked out over the barricade, but there wasn't much to see. She turned around and saw Aunt Gretchen, lying curled up by the fire, eyes closed, maybe asleep, maybe not. Erika propped the rifle beside her, pulled the bag up around her shoulders, and remembered with a shiver the cold clutch of fear that had gripped her at her first sight of the American wilderness. And now she was Eagle! What a transformation! If she forgot about the slow day-by-day changes and just thought about Erika-then and Erika-now—it hardly seemed possible! Erika-then, so terrified on that first day—and no wonder. Never in her life had she been out of sight of buildings. The vastness and the brooding quiet of this land frightened her and almost made her dizzy. Here there were only this winding dirt road, and tree-lined streams twisting between green hills, and a sky so clear and blue it hurt to look at it. No streets, no people, no houses. No fences even, or farms, or—anything. She craned her neck, right, left, everywhere. But there was not a single mark of man, and it made her feel—crawley. She tried to forget her fear by contrasting how Rembrandt and Van Gogh would have painted this landscape. She also tried to see it through Ruisdael's eyes, and Van der Velde's and Buklein's, but as they got deeper into the hills, deeper and deeper into *nothing*, the game began to pall, and the *emptiness* out there seemed to enter into her, and she felt a lostness inside.

But as the little car crawled across the void Howard and Gretchen became more relaxed and began to point things out, and really seemed to enjoy being *nowhere*. "Look," said Uncle Howard, slowing, pointing, "see there? Pronghorns." And a little further—"Badgers. See the two cubs?" And as they rattled over some impossible bridge, "Raccoon—after crawfish. And look! There's a female kingfisher! See those two bands on her breast—male has one." And on and on, both Howard and Gretchen calling them out: "Spotted skunk. Red-tailed hawk. White-tailed deer. Red-headed woodpecker. Prairie kingsnake. Western meadowlark. Golden eagle. Black-tailed jack rabbit." On and on until Erika's brain was spinning and her eyes weary with the glare and with trying to see the little specks they kept pointing to and she had to go to the bathroom desperately and would it never end? "Oh, yes," she kept saying, trying to be polite and to hide her ever-increasing lostness. "Yes, I see. How interesting. A roadrunner. A thirteen-lined ground squirrel. A cardinal. Yes, I saw. Red-bellied woodpecker. Kingbird. Oh yes, *western* kingbird. No, I missed that one. Coyote—they're dangerous, aren't they? Oh, is that right?"

On and on, over a miserable double-rutted road whose every bump seemed to penetrate right to her bladder. But even worse than the bumps was Uncle Howard's habit of slowing down and even *stopping* to look at something with binoculars and still there were no houses or farms and it must be the end of the world and Erika knew that they would never get to a toilet, or anywhere, that they would just go on riding and stopping and riding and watching these horrible hawks and snakes and coyotes till the end of time, and finally she just could *not* respond any more, or even look, and her eyes closed, and two big tears squeezed out.

Aunt Gretchen stopped right in mid-sentence (some ridiculous thing about Sam and a porcupine) and laying a friendly arm across her niece's shoulders, said, "Oh, my poor dear. We're exhausting you with all this, aren't we? Howard, quit poking along and get this thing up to 40! There," she said when he had the little car up to speed, "now we'll be home in no time—less than three hours."

"Three *hours!*" Erika began to believe she was done for. "But there'll be a store or a house or—something, won't there?"

"Not a damn thing," said Howard happily. "Thanks to the Council." Cronk the Council, Erika wanted to say—but didn't.

But Gretchen looked sharply at her niece. "Is anything wr—ah!" She struck her forehead lightly. "Howard, do you see that clump of cottonwoods and blackjack oaks up ahead?"

"'Course. Wasn't that where we saw the sharp-shinned—"

"That's right, and there's a nice little stream there. Uh, could you pull off there for a couple of minutes? Erika and I want to stretch our legs."

Erika did *not* want to stretch her legs out there with those dreadful animals, even though Aunt Gretchen apparently understood her problem and was trying to help. But how could she . . . In the *grass* . . . "Oh, I couldn't! Not out there!"

"Honey, there's no other place."

No other place. She despised this country! Never in her life had she been without a bathroom when she needed one. It was—uncivilized. She just could not do it out there. Or if she could, it would be horrible.

She could. It was horrible. Even if it was an almighty relief.

But almost worse was the spectacle of her own mother's sister lying on her belly, drinking from the brook like an animal. "Delicious," she said to Erika's involuntary exclamation of horror, "spring fed, and filtered by these little rocks. Absolutely pure. Taste it."

The girl shuddered right down to her liver. "Never! I saw a *fish* in there!"

Gretchen nodded calmly. "Rainbow trout—a beauty."

"But Aunt Gretchen! It can't be pure with *fish* in it! Oh please, let's go back to the car—I'm—it's *scary* out here!"

Now, unaccountably, a tear trickled down her aunt's wrinkled brown cheek. "I guess I've forgotten how the city isolates a person—how could I have forgotten—but it's been so long—more than 35 years since Howard brought me from Amsterdam—but you'll learn, my dear—and you'll return as I have." She crushed her niece to her and it felt good even though it hurt. But what was the woman talking about? This *wilderness* isolated one, not the city. And learn what? Return to what? Her whole life had been learning languages and literatures and history, especially art history, but of course Aunt Gretchen wasn't talking about that. Most of that knowledge was obviously useless—no, never!—but at least of no practical value here; America seemed not just a different country, like the Federation of North Africa, but a totally different world. And how could she . . . With her leg . . . And hating snakes and spiders . . . And what about Grunting Bear . . . And not crazy about birds and mammals either . . . Dirty things . . . And dangerous . . . She grabbed Aunt Gretchen's hand and started toward the car. It wasn't *safe* out here; they could be attacked at any moment! She walked fast which made her limp more and was grateful that

She had been both revolted by and afraid of her new home, but Grunting Bear soon showed her how love could overcome both.

Aunt Gretchen didn't mention it. They returned just in time to see Uncle Howard leap up from the side of the road with an ecstatic look on his face. "Look!" he yelled, pointing down, "spearwort! I've never seen one blooming this early before!"

Oh, God. Weeds too!

Then in they climbed and on they bounced over the old road with grass between the ruts, up and down the valleys and across the creeks, deeper and deeper into nowhere with the birds and beasts, until all Erika desired in the wide world was a roof over her head, with no flowers, no trees, no birds, and no animals. Just a room with a bed, and a bathroom and an edu-cons close by, and maybe a rug on the floor. But as they rolled on and on, she began to fear that even these simple necessities were too much to expect from this empty, darkening land. No telling where these people lived–maybe in a tent, or in something made of sticks, like a big bird's nest. You couldn't have an edu-cons in a bird's nest. Or a bathroom . . . Couldn't even ask . . . If they said there wasn't . . . Never realized how wonderful bathrooms . . . Oh, lovely toilets, and showers and tubs . . . Oh, let there be a bathroom . . .

There was. *Mirabile dictu,* there was! And even though the house was made of sticks (logs) there was also a comfortable bed in her second story room and a rug on the floor and even an edu-cons! Her very own console, right in her room, to use any time she pleased!

At her station by the barricade Erika listened to a far-off coyote and hugged her knees and smiled up at the moon as she lived again that joyous moment of laughter and tears and impulsive hugs for her aunt and uncle. Yes, and after they'd left her alone in her room that enormous black wasp with horrid dangly legs bussed out from behind the curtain and flew right at her! Her scream brought Uncle Howard, who killed the awful creature, but Erika felt sure that another was lurking somewhere, and would come out in the dark, and sleepy as she was after she'd had a warm bath and a bedtime snack of cool milk and delicious little cakes, she knew she wouldn't sleep a wink.

She slept thirteen hours. Erika slept a lot during the next ten days and played around on the edu-cons (where she punched in Current Affairs every now and then and began to realize just how far the one-time economic and military leader of the world had regressed) and she even began to get used to foods with

Erika wasn't at all sure the first time she met Grunting Bear that he wasn't going to eat her right there.

real smells and real flavors, but outside the door of their log house, despite almost daily pleas and cajolings, she would not put her big nose! No, sir! Not out there! Howard and Gretchen were outdoors nearly all day long and they told her that working in their little fields and garden and orchard and tending their livestock and making things like cloth and pots and candles and preserving their winter food and especially walking around the country learning the plant and wildlife were their greatest joys and that Grunting Bear spent nearly all his time in the woods, and on and on, but she didn't care. She'd seen that black bear from her bedroom window, and those two coyotes, and she had seen Uncle Howard's rattlesnake skin belt, and she had seen that dreadful roadrunner devour that lizard whole and its poor little tail wriggling in that awful beak for half an hour before he could swallow it—they couldn't fool her, she knew what went on outside, and nobody was going to get her out there, and this dinner-time conversation about nature's way and the balance of species or whatever wasn't going to convince her either.

She wasn't misererable—who could be miserable with an edu-cons (even the limited American one) connecting you with the greatest artists and thinkers of all time and with thousands of fascinating courses programmed by the world's best scholars and teachers? But she wasn't happy either, confined to this house-of-sticks in the middle of the void. She longed for people, for noise, for zipping traffic and places to go, for good old U.S.E. *bustle.* She was just sort of—*nurdly.*

Then Grunting Bear came home.

Ah, that was what she liked to think about—her big beautiful shaggy bear! Oh, let him be all right! Let him come home, in one piece, with good news. And Uncle Howard too. But no matter what the news, or what kind of shape they were in—*let them come home!* Shivering as black clouds covered the moon again, she looked for comfort back into the cave, where an occasional flame licked up from the glowing bed of coals, and Aunt Gretchen lay curled up like a caterpillar in a cocoon, gently snoring.

Grunting Bear. Erika hugged her knees and smiled into the cave's dim light as she remembered that long-ago afternoon when she peeked out of her window and first saw the incredible apparition that turned out to be her cousin and husband-to-be. He was a sight in his filthy buckskins, pack and quiver on back, knife at belt, brown hair (with twigs and bits of leaf in it!) curling down to his shoulders, scratching his red beard as he glided up to the door, huge gray dog at his heels. "Hey!" he called as soon as he was inside. "It's Gruntin' Bear; come on down here, Cousin! I seen you peekin' outta that window!"

Her first thought was that he was dreadfully misnamed—she'd never heard such a beautiful male voice, clear, vibrant, compelling. Her second thought was, how had he seen?—she'd been standing behind the curtain. "Hey, Cousin!" *Gross Gott*—now what? Alone in the house with a shaggy bear! "Hey, you, c'mon down here—or I'm acomin' up!" Erika went down.

Oh my, what a bear hug! And how he smelled! In the U.S.E. nobody smelled—except maybe a little cologne. But Grunting Bear! Sweat, and earth, and fresh air, and something that might be dog and something else that might be skunk, and grass, and more sweat, and—a man who smelled like that was obviously capable of any—"Oh! Oh, please, don't. Please!"

Grunting Bear went calmly on with his explorations and when she began to feel his hardness against her she knew she was going to be raped right here on the floor and she'd hardly ever been kissed before because only freaks like Johan were interested with her foot and her nose and oh his hand was so big and strong and probing and nobody and how and who and oh oh oh . . .

Then he was drinking huge gulps of milk right from the crock and talking in between and it was making his mustache white and dribbling in his beard and Erika's heart was still thumping and she was crying or was she laughing and was there ever such a man?

"Ah-h-h-h-h. We crave this here in the woods, don't we, Sam?"

The huge dog made a sound.

"That there means yes," said Grunting Bear, and Erika watched in fascinated horror as the animal began to lap milk from the crock he put on the floor. That was the same crock they poured *her* milk out of! "See? We gets plenty of meat, anda course I get my roots and leaves, but we shore crave milk. You got a real nice behind, ma'am."

"I—uh, thank you."

"Felt real good to me, an' between your legs there. 'Course, we been in the woods mor'n a month."

"Yes, I—understand."

"I didn't like it when you was kickin' an' hollerin' though—that's why I stopped. See, I've only had three women, the last mor'n a year ago."

"Is—that so?"

"Yeah, so naturally I was real glad to hear you was coming. I had my op when I was twelve, so don't worry none about babies."

"I—won't," she managed faintly.

"Good! You got real nice titties too."

This man was not real. Real people did not say things like that. But he smelled real! "Uh, your dog is nice. I've never seen one quite like him."

"No dog. Wolf. Say hello to your cousin, Sam."

Wolf? *Wolf? WOLF!?!?* Sam stalked over to Erika, who was frightened not only beyond words, but beyond thought.

"You ain't skeered? Sam'll just lick your hand a little."

She was incapable of moving her hands from her lap, so Sam licked them, sniffed her leg, and stalked back over to the hearth rug.

"Hey"—Grunting Bear was shaking her gently—"what's the matter? He's just a wolf—he won't hurt you—lookee here." Erika's eyeballs could still move, and they followed him as he kneeled beside Sam and scratched his ears and wrestled with him and stuck his hand right between those terrible jaws and even kissed him with a great slobbery kiss.

It was too much. Erika jumped to her feet, looking wildly around for a place to vomit. But Grunting Bear and Sam turned to her with looks so comical—and so identical—that she burst out laughing instead, and sank weakly back down into her chair as Grunting Bear towered over once more. Again came the feeling that this wasn't real, that time was out of joint somehow, because this buckskinned giant and this animal certainly did not belong in the year 2112. Maybe she'd *wake up* in a couple of minutes and find it all a dream or some weird experiment or—something.

"Sam won't hurt you none. He likes people. I raised him up myself, and we hunt real good together. " 'Course, I cook my meat 'fore I eat."

"Of course," murmured Erika.

"Usually." Then in a twink Grunting Bear's big knife appeared in his right hand and Erika knew that everything was real, and that this savage was through playing with her now. He was going to kill her. After he'd mauled her Sam was supposed to have but he hadn't and now Grunting Bear was and then they would eat her. Raw. "P-p-please," she choked out.

"Huh? Listen, w'you cut me?"

"I—w-what?"

"Cut me. M'hair. M'beard. Ma usually does but she ain't here an' I like to get cut 'fore I take my bath. Here." He shoved the carved bone handle toward her.

It didn't take too long for Erika to realize that Grunting Bear was a perfect environmental adaptation.

Oh God, what next? Well, at least it wasn't–that other. Of course, she hadn't really believed that. Erika gingerly grasped the weapon. It felt–natural. She made a tentative pass in the air.

"Hey! You gotta cut careful around my head!"

"I know. I–I've never held a knife like this before."

"Feel that edge. Careful! And the balance! Here, lemme show you. See that lil patcha moss on the wall? He grabbed the knife by its blade and the next thing Erika knew there was a *thunk* and it was buried deeply in the log within a centimeter of the moss patch. "Crut! Missed! Now–let's see you pull that knife out."

"Oh, I . . ."

"Go ahead, I bet you can't."

"What do you bet?"

"I bet–a kiss!"

"You mean if I don't?"

"Yeah."

"What if I do?"

"Uh–I'll learn you to throw–just like me! Shouldn't take mor'n a coupla years."

Erika pretended to think it over. "No-o. I think I'd like something else better."

"What? I c'n learn you to call a wood duck. Or a loon. Or a chickadee or a red-tailed hawk–an' they're hard! I c'n call just about any bird. Four-legged critters too."

"No-o-o–I'll tell you what! If I pull that knife out, you have to let me show *you* something!"

"What?"

"Some paintings. On the edu-cons. OK?"

Grunting Bear scratched his beard–and picked out a fuzzy little brown seed. "Pichurs?"

"Yes. By a great artist. My main field is art history; I've written–well, never mind that–but I'd like to show you some of my favorites." To her surprise she found herself smiling up into his hairy red face and bright blue eyes.

"OK–can't say no to a pretty girl. You won't pull that knife out anyway."

Erika limped over to the knife, joy making her tingle from top to toe. He said *pretty.* He did. Pretty, he said. Pretty, pretty, *pretty!* She grasped the knife handle and pulled–nothing. Both hands–nothing. Well, win or lose, she sort of won, but by Rembrandt, this was her chance to begin civilizing this savage, so–one more try! Standing on her good leg, she awkwardly braced her bad foot against the wall for leverage, gave a mighty heave on the handle, and fell backwards–into Grunting Bear's arms. "Figured you'd fall if it came," he said, gently easing her back onto her feet.

"Hey! Who stole my ham an' cheese on rye?"

"But I got it!" she cried in triumphal excitement.

"Hey, ma'am? What'samatter with your leg? I seen you limpin' acrost the room–an' down the stairs."

"Oh–" Her face fell and her spirits crashed and she felt like crying but she was too cronking mad. He was so tactless! Just like a child! Erika shook herself free from his encircling arms and filthy buckskins and looked straight into his blue eyes. "I was born with a–deformity. A bad one. But the doctors fixed me up so I could walk. I wish you wouldn't call me ma'am. My name is Ericka"–stressing the first syllable.

"OK, Ricky, now you just set down here whilst I take a look at your foot."

"That's *Er*ika, you, you bear!" But she didn't protest as he seated her and removed her special shoe. A big, pink toe protruding through her stocking did nothing for her composure, but the Bear didn't seem to notice as he removed her stocking and rolled her slacks up above her knee. She just couldn't fight any more, even if he was another Johan.

But he wasn't. His eyes didn't glitter like Johan's and he didn't lick his lips and try to put her foot in his mouth or press it against his middle. He just held it in his big, warm hands and studied it and gently caressed and squeezed it and it really felt very good and she wasn't afraid at all. What the cronk, *she* had the knife!

"Now, this here foot . . ."

"Yes?"

"This here foot and this here leg ain't too bad. You can ride real good with this foot, an' walk ten miles a day over good ground."

"Oh, *no* I–"

"An' five miles over rough. But you gotta be a little careful an' you can't run long distances."

"Run–ten–five–you–you're crazy, you know that? You're a crazy bear!" She flourished the knife. "Put my sock and shoe back on!"

"Yes, ma'am." He did.

"And don't call–"

The Invaders had determined to change the life-style they had found, but Erika wasn't about to allow it.

"I'm gonna call you Ricky. Here"—in one fluid movement he pulled off his buckskin jumper and sat down at Erika's feet—"get cuttin'."

Grunting Bear's brawny, hairy back against her legs sent all kinds of interesting sensations running up and down her spine. She opened her mouth to disclaim all knowledge of barbering, then closed it, grabbed a handful of hair, and whacked it off. That knife was sharp!

"Real fine," said Grunting Bear, when she was done.

"How do you know?"

He felt. "I can feel." He got a straw broom and began to sweep up.

"Hey, you're *neat!*"

He jerked his thumb toward the door. "Out there, when you pass through, you leave it so's nothing'll know you been."

"Oh. Now can we see the paintings?"

"Pichurs!" said Grunting Bear, his tone expressing disgust, resignation, and a soupçon of self-pity so perfectly that Erika had to smile. And as he reluctantly followed her across the room to the downstairs edu-cons, the truth struck her right across the back of the head: She wasn't *nurdly* any more!

Her fingers played lovingly over the familiar knobs and push buttons as they seated themselves in front of the screens. No need to query Index—she punched in the memorized code for the catalog of Rembrandt's *oeuvre,* rolling it through on the supp screen with her left hand while punching pictures onto the main screen with her right. The pictures weren't holographic, so the impasto didn't show up as she liked, but the color was pretty good and the detail-zoom worked well and she felt that her selection and commentary were almost inspired as she illustrated the up-and-down story of Rembrandt's life with paintings of his mother, his son Titus, his wife Saskia, his mistress Hendrickje, and of course the magnificent self-portraits. Her glowing brown eyes transfigured her face as she spoke of her hero, but where was the answering spark in Grunting Bear? Hendrickje as Bathsheba perked him up a little, but Erika knew she was losing him as she delved into the biblical pictures, and when her tears began to fall as she tried to explain Christianity and the glorious chiaroscuro of *The Summer at Emmaus* she really didn't know if they were due to her joy in the masterpiece or to her frustration with this intractable pupil. A little desperately she tried the historical pictures, then some of the individual and group portraits, and finally the landscapes, which an outdoor person like Grunting Bear just *had* to like.

"I never seen a sky like that."

"Oh, for . . . This picture hasn't lived for almost 500 years because it's a good *copy* of something! Rembrandt took reality and . . . and transmuted it into . . . into . . . the *essence* of sky and hills and trees and river and"—in a small voice—"don't you understand?"

"Can't say's I do. How come you wanna lookit pichurs anyways? They ain't nothing." He took her hand. "C'mon, let's go out an' look at *real* sky an' hills an' trees an'—"

"No, sir!"—jerking her hand away—"you ain't getting me out there! Aren't! Can't you understand that this picture is as real as your dirty old trees? It's a work of art; it's real!"

"I wouldn't know," said Grunting Bear.

"Well, *I* would! Take my word for it!" Punching in another—"Now look at this one—see, you don't judge a work of art by . . ." She rattled on, somehow unable to stop even though it was obvious that he was bored almost to desperation. Not until Grunting Bear's jaws gaped in an enormous yawn did she stammer to a halt, her hands fluttering into stillness atop the edu-cons' buttons and knobs.

"Is that all the pichurs?"

"I guess. You don't like them."

Grunting Bear got up and stretched. He was *big!* "I got a little sleepy was all. Now I'm gonna take my bath."

"Uh, good idea. I'll—uh—see you later."

"Ma scrubs my back sometimes."

"Is—that so?"

"Yeah. Y'know, I was wonderin'—"

"No! I've—uh, I've got to mend my stocking!" And she'd dashed up those stairs as fast as her leg-and-a-half would carry her!

Erika chuckled in the cave's gloominess, then pressed her lips together as Aunt Gretchen stirred and mumbled something. Let the old dear sleep; better that than sitting here thinking and thinking about the past and the future and worrying about their men and the Resistance and . . . Resistance! *Was* it Resistance any more, or was that just a word they were using to keep each other's courage up? With the enemy's stranglehold on communications, there was no way of knowing. Technology again! Backed into the same old corner time after time. The country was far too big for this mounted courier system. No word for months from New England or the Pacific Northwest—were any of Eagle's broadcasts or pamphlets getting through? Was there nation-wide Resistance any longer, or not? Technology, technology . . . "Ach!" she exclaimed in frustration and disgust.

"Wh—is that you, Ricky?"

"Yes. Sorry—didn't mean to wake you."

"Thinking again?"

"'Fraid so. Please go back to sleep, dear."

"Oh, I can always sleep! About our men?"

"Yes, but more just then about the Council—you know."

"I know," said Aunt Gretchen. "Now, Ricky, I wish you—"

"The stupid cronking idiots! Letting foreigners get control of the technology."

"It wasn't so much that they *let* them, dear, there just wasn't anybody else. Most of the few million Americans left after the horrors of the 40's wanted nothing more to do with cities, where the starvation and mob rule and cannibalism—but you know the story."

"Yes, but they died in the wilderness too—what was left of the wilderness then."

"Yes, because they'd lost touch after generations of city life. But the fact remained that when the blight wiped out our agriculture, there was hope of survival only in the woods. The first Eco-Council didn't *force* the rules about one city in each state and the minimum ten square miles around each Holding and one child per family and no specialized agriculture on the Survivors—they welcomed them! The rules more or less codified what they were already doing."

"I know that, Aunt Gretchen. I'm a convert too, remember? I'm a true believer! Great God, I'm Eagle! But nevertheless the Council should have incorporated military and industrial technology into the new society in some way—*some* of this new generation would've been interested if they'd had a chance. I still say the Takeover was assured the moment the Council let foreigners set up their first factory."

Aunt Gretchen sighed heavily in the semi-darkness. "You're probably right. But how could we have prevented it? We had no military. And after the Years of Trouble, our people wanted no part of cities or technology. And don't forget that Council Police needed foreign help to cope with all the petty dictators that had sprung up during those years."

"I know, I know. Perhaps the wonder is that the Takeover took so long."

Aunt Gretchen curled back up in her sleeping position. "There was no point in taking over as long as they had everything they wanted."

"But the Council make it inevitable when they tried to hold the line on re-

They say that no one is more zealous than the recent convert, and Erika certainly proved the point.

sources exploitation."

"Hmmmm."

"Aunt Gretchen?" asked Erika softly.

"Mmmmmm."

"Is there"–voice sinking to a whisper–"any hope for us?"

Her answer was a gentle snore–as good an answer, Erika thought, as she was likely to find to *that* question. Oh, let the Bear and Uncle Howard be alive and on their way home this cloudy night! Let them not be lying laser-burned or in some enemy cell. Well, they knew the land; they were superior riders and woodsmen; they were traveling only at night–surely their chances were good! Being a few days over didn't signify–they'd been ten days, even two weeks late before. The return date was merely an estimate after all. They were all right. They were all right!

She crawled out of her bag and prowled around a bit, inside and outside. This night watch might not be totally necessary, but it was no hardship for an insomniac! Those five or six hours she caught in the morning after Gretchen got up seemed to be enough. When her Bear was around, of course–that was different! Then what a pleasure it was to go to bed! And how she could sleep after he'd loved her well! *Brrr*–November nights were no time to be out in only a coverall! Erika snuggled back into her bag, resting comfortably against the side of the cave and remembering another sleepless night, the night before the fateful day when she'd stepped across the cabin threshold into a new world! No need for a down-filled bag on that night; she still remembered sweltering there on top of her sheet, fretting about Grunting Bear. More than a month since he'd come gliding up to the house with that strange half-run, half-walk of his, and her hopes of civilizing him were crashing around her ears. He just didn't care about art or music or literature or history or drama–even the classic *Gunsmoke* failed to excite him. It was the same with philosophy, psychology, anthropology, physics, chemistry, astronomy, and astronautics–but he *would* sit for hours in front of the downstairs edu-cons, soaking in information about birds, mammals, insects, trees, weeds, and other noxious things, occasionally snorting at the screen when somebody got something wrong.

Oh, it was frustrating! As if he didn't see enough of that stuff out in the woods where he went traipsing almost every morning, and sometimes afternoons too, and sometimes all night. But not tonight! Tonight he was home, in his room just down the hall. Where did he go out there; what did he do?

"Come an' see," was all he'd say when she asked. She knew why he wanted to get her alone out in the woods. The way he looked at her . . . She knew what was on the mind of *that* shaggy bear! She moved her arms and legs luxuriously over the soft, hand-woven sheet. It felt good to be lying here in just her underpants. Her hands stole up to her breasts, each drooping slightly to one side as she lay on her back. He looked at them often. Oh, it was nice to be desired, by a big, healthy man, who thought she was pretty! It was exciting. It made her feel like a woman. Grunting Bear must have a blind spot when it came to noses–or maybe it was just that he spent so much time in the woods . . . Now–*what was that?*

It was a step. It *was* a step. He was coming! And the latch wasn't hooked. In fact, the door was ajar. She stiffened with excitement and anticipation and fear. He was really coming this time! What would she do? Would she scream? Would she fight? She listened with such intensity that she seemed to be all *ear* . . . There! No. Was it or wasn't it? She waited, listened, waited. Was that step in the hall, or just in her mind? Listened. Waited.

Cronk! It wasn't him. What a relief! She wouldn't have to fight him off.

He wanted to get her out in the woods–that was it, out there where her screams couldn't be heard! But that's where she was too smart for him. If she couldn't civilize him, by Vermeer, he wasn't going to *un*civilize her. No, sir, he wasn't going to get *her* out in those woods with those snakes and skunks and cougars and . . .

Next morning (oh the cunning rascal) carefully stowing his pack and saying, "Yep. Leavin'. Nope, dunno when–months, prolly. C'mon along, Ricky–we'll go slow, your pace, teach you the woods–be good for you. Tell y'what. You want to try, we'll start out with some one day hikes–back here nights–then an overnight or two–break you in easy, 'fore we tackle a long trip. What d'you say? Otherwise, I'm leavin'. Now." He put his pack on and opened the door while an ecstatic Sam cavorted around his legs in a most unwolfly manner. "What d'you say, Ricky?"

God help her, she'd said *yes*–and then crossed herself–something she'd never done before in her whole life!

Or since–because it had gone amazingly well after that first trembling step. All the menace of the woods (well, 90 percent!) turned out to be in her own mind. *Gross Gott,* the glorious adventures they'd had over the years! Grunting Bear talking to the animals, using the extraordinary pitch and dynamic range and the uncanny mimic ability of his voice, which could raise the hackles on her neck when he called a cougar or a loon. She'd been surprised to learn that most birds and mammals didn't just sing or squeak or grunt at random, but made different sounds, each with a different meaning. And Grunting Bear knew them all! Or so it seemed at first, as he began to teach her in his patient way. But before long she discovered that he was learning every day too.

She vividly remembered the first bird (black-billed magpie) she learned to identify by sight and song, and the first one she learned to call herself–the bobwhite. She recalled other *firsts* in the woods–her first drink from a stream, her first trout, her first rabbit, her first deer. And the first wild fruit (rose hips–tasting a bit like apples) she ever ate. Yes, and many a trip walking along this creek or that river, through cottonwood, blackjack oak, and sugarberry trees, and gooseberry, plum and cherry thickets, watching for otter, muskrat, and beaver. And learning the story of every plant and animal, if it was good for food or medicine or what, and the relationships it had with everything else, and finding that the wilderness wasn't empty after all, but filled to the brim with a myriad of lifeforms, each intertwined with others in a web of endless fascination. The wilderness was something to be courted and understood and cherished–not that it couldn't be dangerous: she remembered several bad falls, and one near-drowning, and more than one hair-standing fright from grizzly or rattler–but her delight in the man who walked beside her, in his strength and gentleness and superb woodsense, and especially her delight in *his* delight with her when they were cuddled in their bag at night, or even when she learned another bird or mammal or plant, made up a hundred times for those negatives–which added spice to existence, after all!

Glorious times with Bear and Sam (till he died), two, three, four hundred miles from their Holding on foot or horseback, all with her gimpy left leg, and learning, learning, learning, every day. Yet she'd never quite mastered Grunting Bear's almost frightening ability to keep his awareness so keenly tuned to each passing second that he seemed to become one with his environment. But of course he was born to it. His generation was not only more at home in the woods than in the city, but more at home in the woods than *at home!* Like Grunting

The Eco-Council had decreed that man must live in harmony with the land, but the invaders didn't agree.

Bear, they traveled light and lived off the land, and although some wandered away for good, most were tied to their Holding both for winter food and for the edu-cons, which taught them more about the plants and animals they lived among than they could ever learn by observation alone. Fortunately so, or there would be nobody to listen to Eagle now, nobody to resist the Takeover—if anyone still was!

Yes, the Survivors had brought their children up wild; they and their precious Eco-Council had tried to turn the clock back, and they'd even succeeded for awhile, but the world clock ticked on and on, and now, alas, America was finding out what time it was.

Oh, if only there could be some kind of balance between wilderness and civilization. If only one didn't always drive out the other. If only things could be organized so that people could enjoy the best of both worlds! Ach, if only this, if only that. Idle, foolish speculations for Eagle—even for Erika! Spinning this web of memories and fancies like some unconscious spider—and getting entangled in it, which no self-respecting spider would ever do! She ought to be planning more broadcasts, or figuring how to get better weapons, or how to improve communications, or—something. But what did she really know of war, guerrilla or otherwise? A few texts read in connection with her historical studies, and her experiences for the last two years—more than most Americans, but what did she really *know,* and who could control these sprawled-out enclaves of Resistance anyway, and what would her beloved American patriots do if they knew their Eagle was a crippled Dutchwoman? Ah well, no doubt stranger things had happened in history—right offhand, she couldn't think of one. Sighing a little, she closed her eyes. Erika *then,* Erika *now*—comprehensible or not, the transformation had occurred, and—*wait!* Was . . . No . . . *Yes*—a horse!

In two seconds she doused the fire and woke her aunt, and they quickly manned the barricade, Erika with the captured laser rifle and Gretchen with her bow and arrows and spear. Conjectures darted through Erika's mind like fireflies on a summer night. Surely it was the men—but why only one horse? Had a horse been lost? Were they riding double? *Had a man been lost? WHICH ONE?* The seconds ticked by, each several hours long, while she strained her eyes and ears into the night now completely silent except for a far away coyote howl. And . . . *there it was*—her own sweet Bear's night identification—the quavering whistle of a screech owl—if she hadn't heard the horse, she'd never know it wasn't real. She waited, hoping, praying (to a God she didn't believe in) to hear Uncle Howard's eight-note barred owl hoot. It didn't come. She looked at the indomitable old woman down the barricade—just a shapeless hulk in the darkness; there was no sound and it was too dark to see, but Erika knew she was crying for the man who had almost literally swept her off her feet some 44 years ago and carried her away to this strange new world. She tried to answer her own husband's call, she tried to get out a word of comfort and hope for Aunt Gretchen, but somehow nothing came and all she could do was sit and wait, holding the smooth plastic-and-steel symbol of their defeat across her lap.

He slipped into the cave in his silent way, and Erika was in his arms, and Gretchen too, but his first words this time were for his mother. "Pa's dead, Ma; they got him after we split up down there in Texas."

"How . . ."

"One a them new night flyers—sees in the dark, missles go for your body heat—if they're anywhere close, they got you. He was a brave man, Ma, he woulda fought, but there ain't no way."

"I understand."

"I found the spot, buried what there was."

"Oh. I'm—I—thank you for that. I—think I'll just sit down here."

Grunting Bear helped his mother to her pallet and he and Erika sat beside her for some minutes, each holding a tough, wrinkled old hand.

The silence was broken by a growl from Grunting Bear's stomach. "Kin we get the fire an' some grub goin', Ricky? I been ridin' so many—I ain't even sure myself no more. An' I got news for you, darlin'. Eagle, he ain't gonna like it; I dunno what Ricky's gonna think."

Erika steadied her hands to their task and when the flames began to lick up she thought she could trust her voice. "What . . ." But it cracked and broke in a most uneagle-like way. She cleared her throat and tried again. "What is your news?"

"Well, uh . . ." He moved over to the fire. "You prolly figured it out already?"

"Tell me, Bear—straight out!"

"Yes'm. Well, it's—we're all done, is what it is."

"How do you mean?"

"I mean the Resistance is finished. I mean there ain't no more Resistance."

"Listen, where there's one free Amer—"

"That's Eagle talkin'! I knowed he wasn't gonna like these here facts."

"How do you know them to be facts?" asked Aunt Gretchen, her voice quite calm.

"You been monitorin'?"

"Yes," said Erika.

"Then you know the Eagle ain't screamin' around here no more. An' we had word from Nebraska and out Idaho way, and Miss'ippi—there just ain't no broadcasts no more, anywheres in the South, or west of the Missouri."

"What about the Northeast?"

"Didn't hear, but you know that's where the gov—the Invader's strongest. If he got all the other transmitters he got those. Them old groundcars just couldn't go far enough between transmissions. They snooped 'em out. They got ways . . . Them buggers can snoop out anything."

"They haven't snooped out Eagle yet."

"No, lucky fer Eagle, he's livin' like a mole!"

"What about our pamphlets?"

"No pamphlets, 'cause no courier system. These night flyers that got Pa—you can't escape 'em, 'an men just won't ride no more. That stew hot?"

Erika tested. "Almost."

"Y'know what really stopped us, Ricky? This Amnesty!"

"That dirty propaganda lie!"

"It ain't no lie."

"It *is* a lie!"

"Ricky, I been ridin' for three months; I been to Holdings in five states; now are *you* gonna tell *me* what's happenin' out there?"

"I—I'm—no."

"The Eagle gets to believing his own screamin'—that's the trouble! I'm tellin' you this is a real Amnesty, an' it's hurt us mor'n those night flyers or anything else. People goin' back to their Holdings an' checkin' in with the government—I mean the Invaders—just ain't gettin' bothered."

"I've been listening too, Bear; there's more to it than checking in."

"Well, naturally they gotta promise not to fight and to carry their I.D. bleeper—but that's for their own protection, Ricky, so won't happen to them what happened to Pa."

"It's still an infringement of freedom."

"What was the Council's rule to have only one child?" asked Aunt Gretchen.

"That's right, Ma—there's no rule on that now. The ones goin' back get their Power turned on and the edu-cons lighted an' all that. Man, that stew smells

Without a technological civilization, Erika's people had no chance to defeat the invader, but still they tried.

good!"

Erika ladled him out a generous bowl and sat down by his side. "And how long do you suppose that will last?"

"'Bout as fast as I c'n shovel it in!"

"No, the *Amnesty,* you idiot Bear! How long before they move in and start replacing our wilderness Holdings with food factories and industrial factories and—"

"Who knows? Mmmm . . ." Grunting Bear's comments were punctuated with pauses for chewing and swallowing. "You been monitorin' . . . you know they're talkin' about planned and orderly development . . . better edu-cons . . . diversified agriculture with blight-resistant cereals . . . an' gettin' Americans into government and industry an' all that soon's they can."

"Government!"

"Them that's running things is the government, Ricky."

"A government without the consent and participation of the governed!"

Grunting Bear said nothing until he'd finished his bowl and held it out for a refill. "Well, there ain't no Resistance no more—that's some kinda consent." Erika gave him a second bowl and a big chunk of bread, then sat down close beside him. "Thanks, Ricky. Participation'll come too—I bet *you* could be something big with your brains an' your writin' an' all."

"Never!" But she felt the blood rush to her head at the heady images his statement conjured up.

Grunting Bear was taking his time with his second bowl. "Strong word . . ." he commented mildly.

"Suitable to an *eagle,*" said Aunt Gretchen, as though completing his sentence, and Erika began to see how the wind was blowing. What was suitable to Eagle might not be suitable to Ricky—the very point they'd discussed this morning—from a slightly different angle!

There was about ten minutes' silence in the cave as Erika tried to get the feel of the new shape of things. Grunting Bear was head of the family now, but she knew him too well to suppose he would make any drastic move without her consent—and Aunt Gretchen's. "What about the Holdings, Bear—have they stopped lasing them?"

"Yep—no reason to lase. I didn't find nobody in a Holding who hadn't checked in with the government."

"And how many would you guess are still hiding out or in active Resistance?"

"Howard is one less," said Aunt Gretchen.

"He is that, Ma. I don't know, Ricky. Very few; all the hideouts I seen was empty. You've heard the government's broadcasts on Eagle's old freq—'Rebellion's over, now let's built together'—all that."

"Yes."

"Well."

"America will end up just like Europe—overcrowded, overindustrialized, overregulated, over-everything—you haven't been there, you don't *know!*"

"I've been there," said Aunt Gretchen quietly. "It's better than—death."

Grunting Bear mopped up the last of his gravy with a hunk of bread. "They say they've learned from—before. They say it's gonna be different this time, with these plans they've got. They say—"

"I *know* what they *say,* Bear!"

"Uh—you ain't got any cookies, by any chance?"

"Gross Gott, man! What do you expect from a hole in the ground?" Suddenly, exploding out of her, "You think we should go back, don't you?" There! Now it was out! She pressed her head against his chest as he stroked her hair. He smelled pretty strong, but it was worth it. "Go back to the Holding and check into this . . . this *machine,* become a cog in the works—is that what you want?"

"He'd be a *live* cog," put in Aunt Gretchen.

"It ain't that . . ." began Grunting Bear—and stopped. "Well, yeah, I guess maybe it is. I b'lieve I'm to the point, see, I been scared too long. I been sneakin' around killin' too much. I—I'm sorry."

"Oh, Bear, you—you make me feel . . ." But there seemed no way to say any more or do anything but hug and kiss him madly and thank God (whom she sometimes wished she believed in) for giving her such a man and such a family.

And as her husband returned her embraces, something died in her, and it was Eagle, and she scarcely noticed his passing. ○

HARLAN ELLISON

from page 82

name; you stop being many things and become one thing.

VERTEX; What have moments of violence taught you?

ELLISON: I've discovered that I am a very brave person. It was a good, enriching, strong thing to learn. Because I have learned it, I have very little fear of any kind of situation. I can attempt things that I would have never thought possible. I mean, I would walk up to *God* and say, "Hey, dude! How's about doing a story for *The Last Dangerous Visions?*" I would never be embarrassed in public, because the worst thing that can happen is that they can kill you.

Once you have led yourself to an examination of the horizons of your own courage, you're better able to make the right or ethical decisions that will keep you your own person in emotional situations.

VERTEX: Can you tell me an example of an ethical decision you have made in an emotional situation?

ELLISON: An example? What kind of example?

VERTEX: Uh, any old example.

ELLISON: Well, for instance, my television series, "The Starlost." I went through a very bad period when people were fucking up my concept. It got so bad that I took my name off the credits, put on the pseudonym "Cordwainer Bird," and walked away from the show. Now, there was an enormous amount of money involved. Just a gigantic amount! And money is freedom; that's what I've always contended. All right. I could have gotten all that money, yet I could not, in all ethical consciousness, stay on with the series and contribute to it. There were any number of ways I could have rationalized staying on. But I knew I couldn't because of the kind of person I am.

VERTEX: In an introduction to a story by Theodore Sturgeon, you stated that while he knew all there was to know about love, you knew all there was to know about hate. Would you still stand by that remark today?

ELLISON: Well, there was a certain amount of flippness in the remark. Although Ted knows a lot about love, I don't think he knows everything there is to know about it. At least he knows what many of its manifestations look like. And I see cruelnesses in Ted and in his work. We are probably closer to each other as writers than either of us would care to admit.

VERTEX: Exactly what did you mean when you stated that you knew everything about hate?

ELLISON: I meant that my background had formed me in such a way that I was sensitive to those negative things. I've experienced a great deal of hate, at the hands of others and at my own hands. I do think I know more about hate than Ted, because I've suffered more hate than Ted. Ted is a more loving person, I suppose. For many years I could not admit to myself that *I'm* a loving individual, that I understand some of the things about love—some ways it can be put to use, some ways it can enrich you, and more often the ways it can kill you.

VERTEX: I've noticed that in your major fantasy works you've rarely written a story which was mainly concerned with a man trying to get at a woman in a loving or sexual way. This characteristic is unusual with writers who deal explicitly with the human condition. Why haven't you dealt with this theme very often?

ELLISON: If I haven't—and I wouldn't quibble with you; it might be a valid statement—it's because I've been so unconsciously concerned with discovering the nature of my own soul. It's an egocentric trip where there is no room for examining the unity/duality of a male-male, male-female, female-female relationship. I've found it to be a subtext, a secondary element in my work. I expect that in the next few years I'll be doing stories dealing more with male-female relationships. As my personal interest in sex grows less demanding, I'm able to examine sex with a clearer eye.

VERTEX: William Faulkner said that when a person is writing, he is actually looking for his father. Does this hold true for you?

ELLISON: That quote is one of the most disturbing things I have ever read. I had never even realized that I had missed my father. I *was* looking for him. My dad always seemed to be a quiet, pleasant man who was kind to me, but with whom I had very little in common. He died in 1949, right in front of me. Years later I realized that I had been too stupid to know that I should pursue an acquaintanceship with him. Since then, in many stories, I've been searching through tears and loss, trying to find him.

VERTEX: How have you tried to make up for this lack in your life?

ELLISON: My need for a father figure has kept cropping up at different times. Algis Budrys for a while. Joe Hensley. My current father figure is Art Frankel, the Head of Productions at Screen Gems, with whom I'm doing a television project. Yeah, I think it's very much true that the search for my father is a theme underscoring my work, whether the subject even comes up or not.

VERTEX: Wasn't your story, "One Life, Furnished in Early Poverty" an attempt to find your father?

ELLISON: That's exactly what it was. While I wrote it, I never realized *what* I was writing. It was about a man going back to his childhood to relive it. But when you read it, you see that the character was in fact me going back to play the role of my own father. I reread it sometime after it was published, and it just scared the hell out of me. Because every so often you get a glimpse into the burning core of your own soul and you realize just how crippled and pathetic you are. I've always admired Heinlein's competent man; no matter what kind of situation he's in, he knows how to solve it. And then you look inside yourself and find that all your competency is external and is easily stripped away. Inside you are a crippled child.

VERTEX: Why do you think you're such a controversial figure?

ELLISON: A lot of it is done on purpose. I've seen a number of enormously talented science fiction writers whose careers have been stunted by the fact that they never got any publicity. I have too much of an ego drive toward fame to let that happen to me. So I have very consciously gotten myself into situations and promoted myself in such a way that would get my name known. I don't think there's anything wrong with that; I don't see any great nobility in starving or being obscure. I really care that my work will be read fifty, a hundred, two hundred years from now; God knows, it probably won't be. But I would like to think that I haven't spent all these years

"I really care that my work will be read fifty, a hundred, two hundred years from now."

sitting alone in a room in front of my typewriter, locked up in my own head, friendless, loveless, writing for no greater purpose than to fill hours of television time or to fill empty pages of pulp magazines.

VERTEX: You once mentioned to me that you weren't afraid of dying, yet what you've just said implies that you are afraid of the kind of death you would suffer if your work isn't read two hundred years from now. Have you changed your mind about the first statement?

ELLISON: Well, I think they are two very different kinds of death. Take Thomas Heggen, who wrote *Mr. Roberts.* He died young, but he wrote *Mr. Roberts.* Take a writer like Richard McKenna, who spent sixty-some years living, and was a good man and a kind man. Then he wrote *The Sand Pebbles.* Then he died. His death cannot kill him, because *The Sand Pebbles* lives on. Death cannot kill me; death can only stop me from writing. But if the work I'm doing continues to be read, then I will live on; I will have my posterity; I will have my fame. Everybody has that in them. That's why people try to carry on their line with their children. Well, that's not where my head is at. My stories are my children. Through them I hope to continue to live.

VERTEX: Yeah, but how many sensational writers of the eighteen hundreds are around now?

ELLISON: Only a few. And I'm sure all of them had the same feelings. I would probably sell my immortal soul to the devil for lasting fame. So I guess what I'm talking about is that I don't fear physical death. I mean, I have the same nervousness about it; I don't dig pain, but the dude with the scythe doesn't scare me.

VERTEX: All of this talk about death and fame leads me to the observation that you have tried to prove yourself as good as or better than everyone—sexually, as a writer, with humor, knowledge, in every way I can think of. How come?

ELLISON: *Better* than everyone. Always *better* than. I guess vest-pocket psychiatrists in the audience will say, "That's because he's short." Well, I came to grips with my height years ago. I'm compelled to prove myself because I was always told I was inadequate when I was a kid. I was always the kid who was too small or too weak to play baseball. I never played a game of football in my whole life, man. They would pick the girls before they would pick me. You can only take so much of that before you have to start compensating. I compensated by being smarter, by having a sharper tongue, by being slicker, and by being more easily able to work in different situations. And it's carried on into my adulthood.

VERTEX: You don't compensate as much as you used to, do you? I mean, haven't you become more secure as you've gotten older?

ELLISON: Jesus Christ, when I was a young adult I really pressed hard! I was an obnoxious fucker. I'm still obnoxious from time to time, but I've come to like myself. I really do. I think I'm okay. I think I'm a kind individual, a loving individual, a caring individual, and because of that, I'm able to slack off a little and not press so hard. I'm getting better. So is my writing.

VERTEX: Thank you, Mr. Ellison. ○

DEEPER THAN DEATH

from page 86

you hanging here," he told her. "You'd have had a couple of seconds in which to choose between falling down the monster's gullet or letting go and sinking into the muck."

"You can't take chances like that with me," the woman gasped, "and you know it." She managed to smile up at him, and Anders shuddered. He had known that smile all of his life. The smile hardened somewhat as she said, "I'm going to kill *you* one of these times."

The man gently nudged her fingertips with the toe of his boot and said, "Why don't you ever stay dead?" and pulled the trigger. The woman's head disintegrated. The decapitated body flopped backward into the slime to quickly join the megalosauroid and unguessable others at the bottom of the pool. A fine mist of gore hung in the air.

Anders stood beneath a darkening sky and waited until the last traces of the woman had dissipated before turning and making his slow, cautious way through the forest. Several small moons were up by the time he reached his crashlanded power-glider.

He cursed under his breath but realized that there was no wisdom in attempting to effect repairs on the craft while the largely nocturnal reptiles were on the prowl. He adjusted the rifle's beam for maximum intensity and deepened a snug niche at the base of a massive, upward-thrusting tongue of basalt nearby. With a heat pot set up at the mouth of the burrow to keep out hungry predators and merely curious but not always less dangerous herbivores, Anders crawled into the hole and curled up on traser-fused rock to sleep.

There had always been those who want to belong to the master race, and there always would be, just as there had always been and always would be those who capitalize on that want. Some of those who led believed as earnestly as any of those who were led in the significance of pigmentation, origin, religion or gender. Those sincere individuals slept well, secure in the knowledge that theirs were good and noble causes.

Some of those who led were opportunists.

Anders had been one of the opportunists.

Sixty million voices screamed at him in his dreams.

He was a brilliant man, a learned and capable man, a man who knew what he wanted and how to attain it, a man who knew all of the right words to say, all of the right nerves to hit, all of the right things to do and the right ways in which to do them. He was a mathematician, a scientist, a philosopher, an inventor, an oddball combination of talents, instincts and energies. He was a mass-murderer.

Sixty million voices in his dreams. Sixty million. The number of lives with which Anders had endeared himself to a master race. The number of bodies that had been the legal tender with which Anders purchased love, patronage and his master race's scientifically induced five-hundred-year lease on life. Sixty million. The number of souls traded by a single man for half of a millenium. The number of people killed for a lie. The number of those who had gone to their deaths (ingenious deaths, too; Anders himself had thought them up, for he was also a showman who knew how to please his public, and he never let sentiment get in the way of business) knowing, *knowing,* that they were merely one man's ticket to power and longevity. Sixty million.

When the master race blew it, Anders got away as quickly and as quietly as he could and headed for the mother world's farthest-flung colonies, where, he knew, he would be granted sanctuary out of spite for the despised home planet. Where, he also knew, new opportunities surely awaited him. Wherever there was friction among peoples, Anders could make it pay off royally. For Anders.

There was just one thing, however, which he could not have possibly foreseen: when they begin to cry out for vengeance, sixty million ghosts make one hell of a lot of noise.

Sometimes, such gods as there are pay attention.

And so, in his recurrent dream, Anders saw a familiar shape separate itself from the writhing, shrieking sixty millions and glide toward him, hissing, *I'm going to kill you one of these times.* Anders burned the shape down with his traser rifle and let the bluish-white flame play over the smoking corpse until there was only ash left. *One of these times,* the shape insisted as it again detached itself from the other dream-ghosts and moved forward. Anders pushed it down air shafts, out of airlocks into deep space, into atomization units. He stabbed it, strangled it, shot it, gassed it, poisoned it, electrocuted it, smashed it with rocks, hacked it with cleavers, tore it to pieces with his hands. It clawed its way across blood- and bowels-splattered pavements toward cars in which he had run it down. It clung to the hull of his spacer and hammered on the plates, trying to get in, trying to get at him. It rose, bubbling and blowing slime through nose and mouth, from the bottoms of sludge bogs and swamps. And it told him, each and every horrible time, that it was going to kill him, and when he screamed at it to stay dead, it laughed and said, *You can't kill a fury! Hate runs deeper than death . . .*

The heat pot screeched when it went off. Jerked from his nightmare, Anders peered into the darkness beyond the mouth of his burrow and saw a lump of gritty red mush that had been flesh and bone. There was little recognizable shape to the victim, but the man in the hole knew with all of his heart that it had been no reptile. He turned away and curled up against the wall and shivered there while, outside, megalosauroids and other dim shapes congregated to fight over the mess on the ground.

She would kill him one of these times. One of these sixty million times, his mother would kill him. ○

MOMENT IN HISTORY

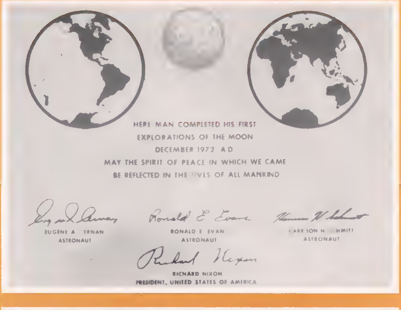
THE FIRST AND THE LAST

Men have left a variety of things on the moon, from a very expensive used car to a small statuette. But perhaps none says more than the twin plaques left by Apollo 11 and Apollo 17.

At 4:18 in the afternoon, Eastern Daylight Time, on July 20, 1969, the Apollo spacecraft *Eagle* touched down on the surface of the moon, founding Tranquility Base. Some six hours later the largest TV audience in history saw Neil Armstrong become the first human to set foot on another world.

When the Apollo 11 team left the moon they left behind a plaque, showing the two hemispheres of earth, and stating that this was the spot where man had first set foot upon the moon, a mission of peace for all mankind. The plaque was signed by Armstrong, Michael Collins, Edwin E. Aldrin, Jr., and Richard Nixon, President of the United States.

That plaque got a lot of publicity during the course of the Apollo 11 mission, but not many people heard about the plaque left behind by the Apollo 17 mission. Again the plaque shows the two hemispheres of earth, but this one also shows the facing side of the moon. Again there are the signatures of three astronauts, Eugene A. Cernan, Ronald E. Evans and Harrison H. Schmitt, as well as President Nixon's signature, but this plaque states that here man completed his *first* explorations of the moon. Between the first and last plaque, twelve brave and dedicated men visited the moon, and it is hoped that someday many men will be able to visit the sites of those two plaques, men from a planet where the spirit of peace which sent man to the moon has finally become an everyday reality. ○



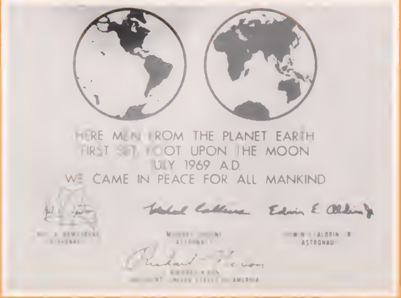
HERE MAN COMPLETED HIS FIRST
EXPLORATIONS OF THE MOON
DECEMBER 1972 A.D.
MAY THE SPIRIT OF PEACE IN WHICH WE CAME
BE REFLECTED IN THE LIVES OF ALL MANKIND

Eugene A. Cernan
EUGENE A. CERNAN
ASTRONAUT

Ronald E. Evans
RONALD E. EVANS
ASTRONAUT

Harrison H. Schmitt
HARRISON H. SCHMITT
ASTRONAUT

Richard Nixon
RICHARD NIXON
PRESIDENT, UNITED STATES OF AMERICA



HERE MEN FROM THE PLANET EARTH
FIRST SET FOOT UPON THE MOON
JULY 1969 A.D.
WE CAME IN PEACE FOR ALL MANKIND

Michael Collins
Edwin E. Aldrin Jr.

Richard Nixon

COLLECTOR'S BOUND VOLUME OF VERTEX

A historic collector's edition of the first year of Vertex magazine magnificently bound into hard cover library volume—complete art and text, volume one, issues one through six 1973.

☐ **LIMITED COLLECTORS EDITION**
EDITION LIMITED TO 1,000 NUMBERED COPIES ONLY
GOLD FOIL EDGE PAPER AND IMPRINT
BLACK CLOTH BINDING
$16.95

☐ **EDUCATOR & LIBRARY EDITION**
STANDARD SILVER IMPRINT
BLACK CLOTH BINDING
$12.95

PRIORITY ORDER FORM
Both editions will be shipped on a priority basis to orders received with payment. Orders will be accepted until entire edition is sold. Due to the limited quantity of both editions, we expect both to be oversubscribed and urge your early response to assure your copy. Priority for future editions will be given to purchasers of this first edition.

PRIORITY ORDER FORM–VERTEX 1

VERTEX MAGAZINE
8060 Melrose Avenue
Los Angeles, California 90046

Dear Sirs:
Enclosed is ☐ check, ☐ currency, ☐ money order, as payment in full for *VERTEX-1*. Please send the edition indicated below:

☐ **LIMITED COLLECTORS EDITION @ $16.95**
☐ **EDUCATOR & LIBRARY EDITION @ $12.95**

I understand that shipment will be made on a priority basis. If oversubscribed at the time of receipt of my order, full refund will be made. (California residents please add 5% tax. Overseas orders, $1.00 additional per volume for postage.)

NAME ______________________

ADDRESS ______________________

CITY ______________________

STATE ______________________ ZIP ________